

STIC Search Report

EIC 1700

STIC Database Tracking Number: 163223

TO: Dawn Garrett
Location: REM 10C79
Art Unit : 1774
September 14, 2005

Case Serial Number: 10/670005

From: Les Henderson
Location: EIC 1700
REM 4B28 / 4A30
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Leslie.henderson@uspto.gov

Search Notes

August 31, if possible)

Access DB# 163223

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: DAWN GARRETT Examiner #: 76107 Date: AUGUST 20, 2002
Art Unit: 1774 Phone Number: 302-1523 Serial Number: 10/670,005
Mail Box and Bldg/Room Location: Remsen 100.79 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: ORGANIC ELECTROLUMINESCENT DEVICE
Inventors (please provide full names): TATSUYA IGARIASHI KOHSUKE WATANABE
Pat. & T.M. Office
Sci & Tech Inf. Cntr
AUG 22 RECD

Earliest Priority Filing Date: JAPAN 2002-287390 9/30/2002

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search formulas
(II), (III), (IV), (V), (VI), ~~(VII)~~ attached

Preferred metals "M" are
iridium
platinum
rhenium
ruthenium

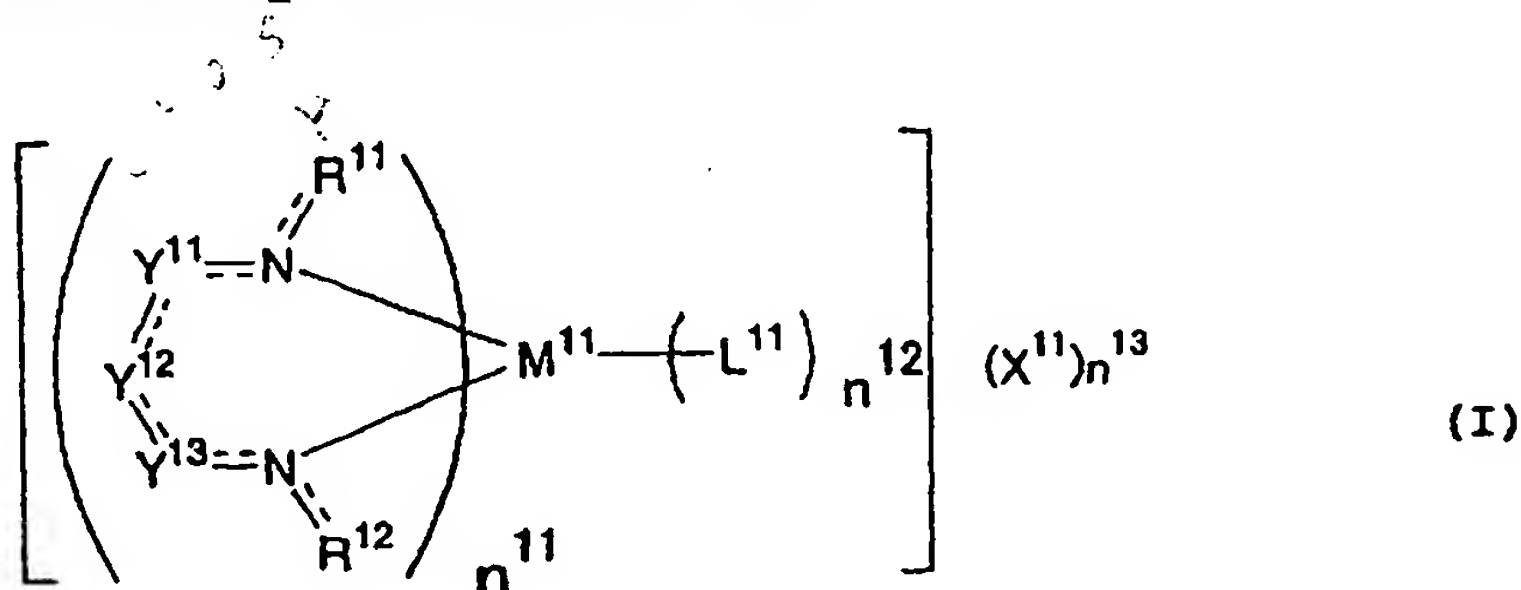
STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: <u>AT</u>	NA Sequence (#) _____	STN <u>\$ 928.29</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>5</u>	Questel/Orbit _____
Date Searcher Picked Up: <u>9/13/05</u>	Bibliographic _____	Dr.Link _____
Date Completed: <u>9/14/05</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>30</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: <u>30</u>	Patent Family _____	WWW/Internet _____
Online Time: <u>150</u>	Other _____	Other (specify) _____

WHAT IS CLAIMED IS:

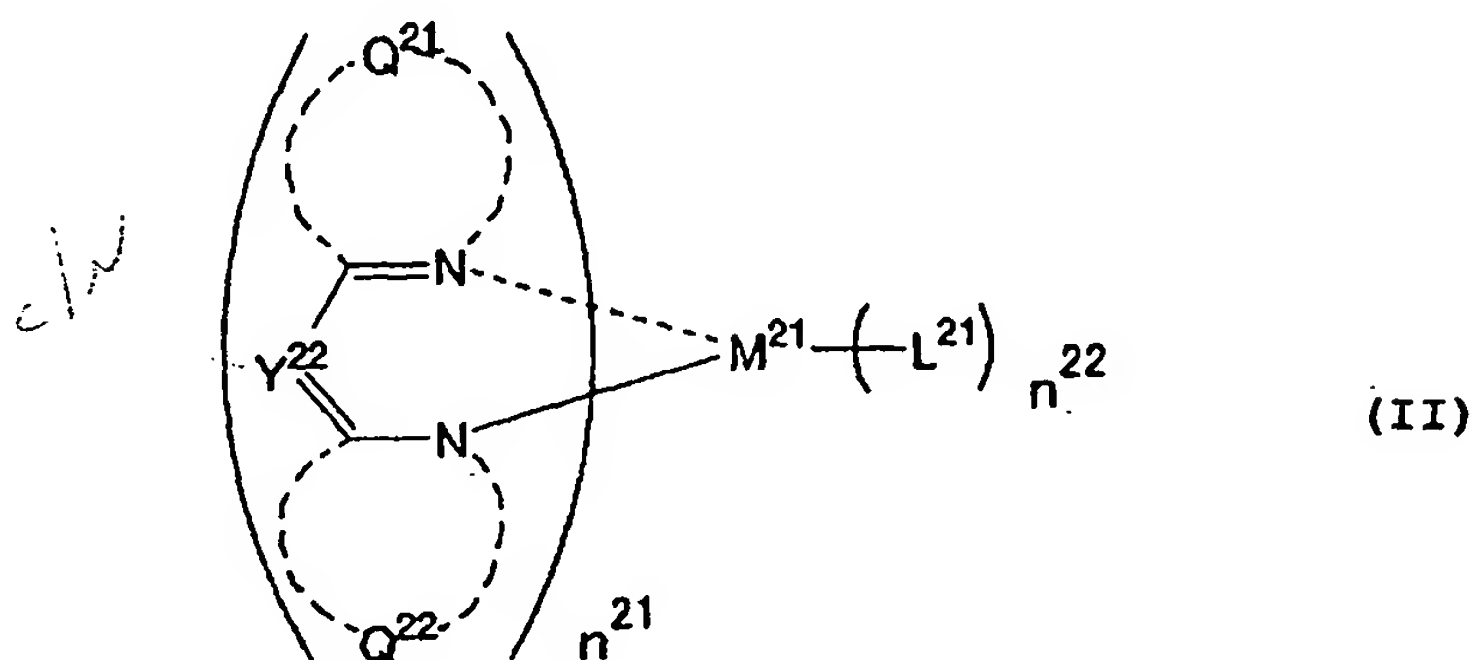
1. An organic electroluminescent device comprising:
 a pair of electrodes; and
 at lest one organic layer provided between the pair of
 5 electrodes, at least one of the at lest one organic layer being
 a light emitting layer,

wherein the light-emitting layer comprises a compound
 represented by the formula (I):



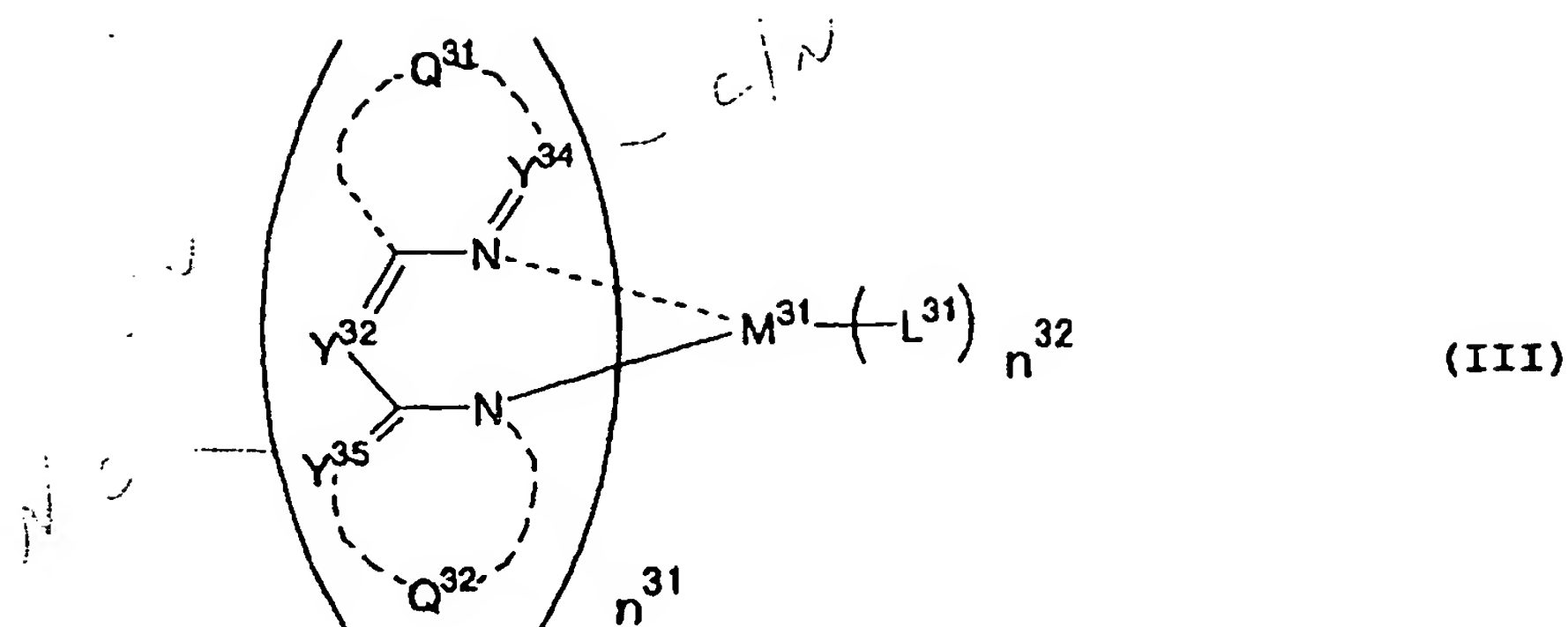
wherein R^{11} and R^{12} each represent a hydrogen atom or a
 substituent; Y^{11} , Y^{12} , and Y^{13} each represent a substituted or
 unsubstituted carbon atom, a substituted or unsubstituted
 nitrogen atom, an oxygen atom or a sulfur atom; M^{11} represents
 20 a transition metal ion; L^{11} represents a ligand; X^{11} represents
 a counter ion; n^{11} represents an integer of 1 to 3; n^{12} represents
 an integer of 0 to 4; and n^{13} represents an integer of 0 to 4;
 with proviso that a compound in which R^{11} and R^{12} are connected
 together to form a porphyrin ring is excluded.

2. The organic electroluminescent device of claim 1,
 wherein the compound represented by the formula (I) is a
 compound represented by the formula (II):



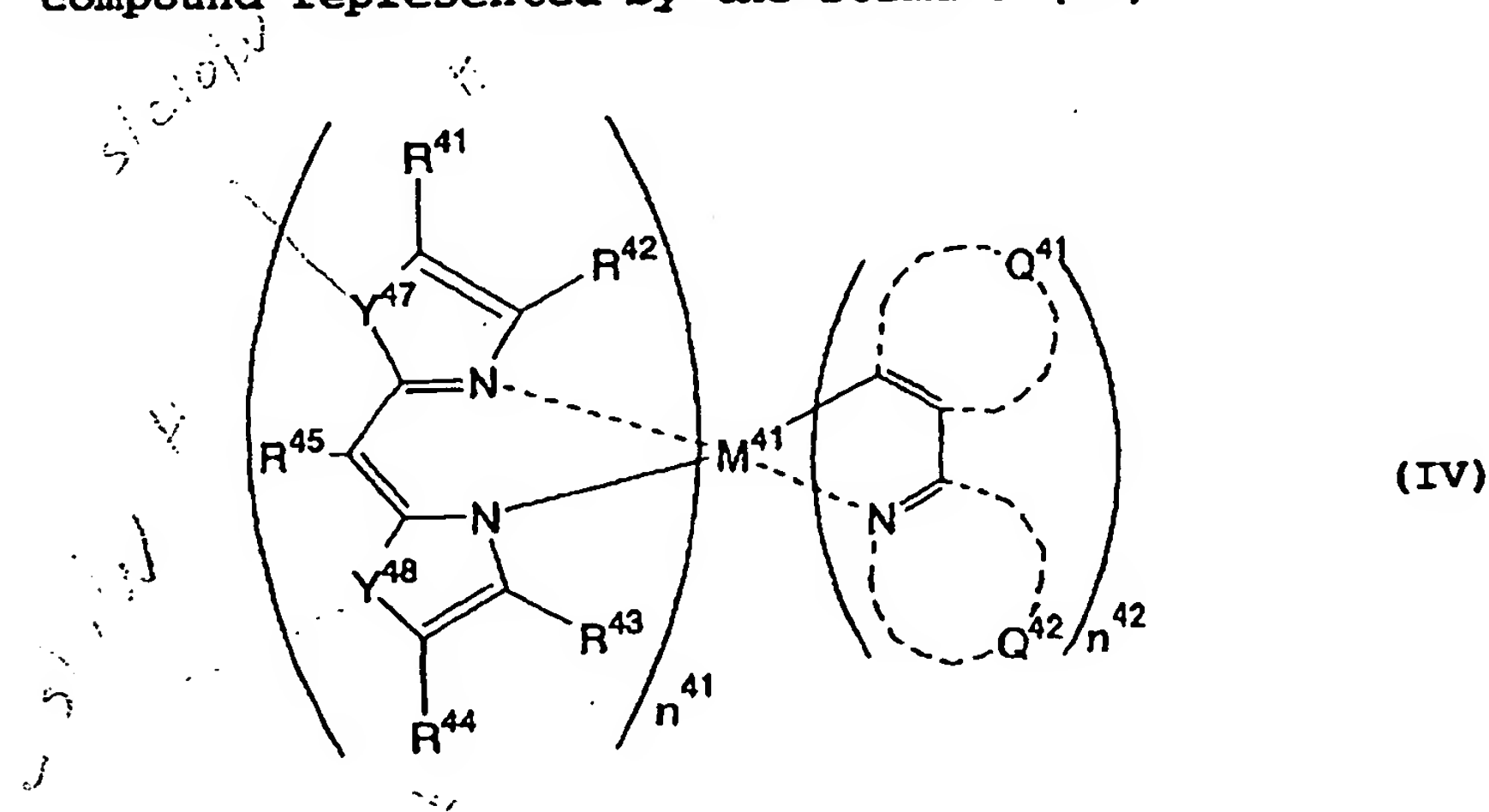
wherein Q^{21} and Q^{22} each represent a group necessary to form
 a nitrogen-containing heterocyclic ring; Y^{22} represents a
 15 nitrogen atom or a substituted or unsubstituted carbon atom;
 M^{21} represents a transition metal ion; L^{21} represents a ligand;
 n^{21} represents an integer of 1 to 3; and n^{22} represents an integer
 of 0 to 4.

20 3. The organic electroluminescent device of claim 1,
 wherein the compound represented by the formula (I) is a
 compound represented by the formula (III):



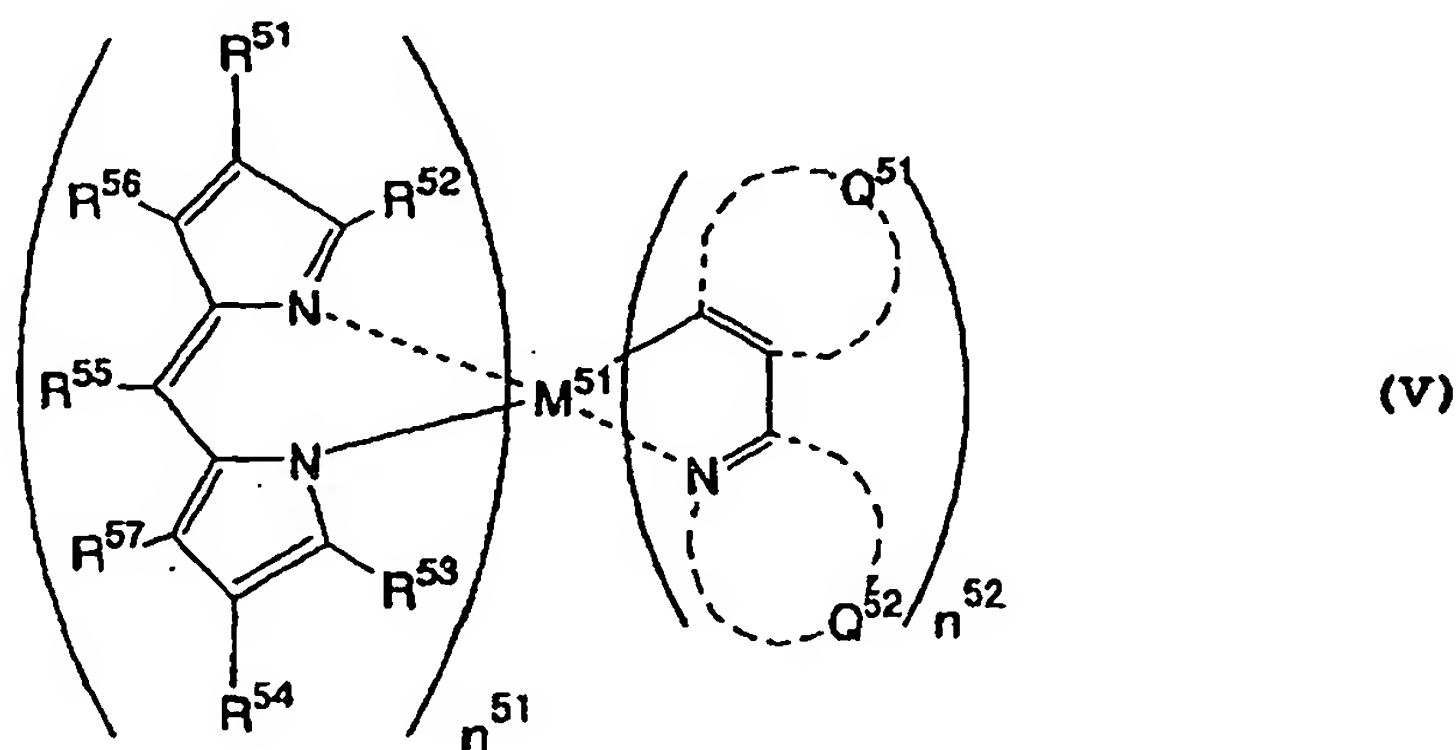
wherein Q^{31} and Q^{32} each represent a group necessary to form a nitrogen-containing heterocyclic ring; Y^{32} , Y^{34} , and Y^{35} each represent a nitrogen atom or a substituted or unsubstituted carbon atom; M^{31} represents a transition metal ion; L^{31} represents a ligand; n^{31} represents an integer of 1 to 3; and n^{32} represents an integer of 0 to 4.

4. The organic electroluminescent device of claim 2, wherein the compound represented by the formula (II) is a compound represented by the formula (IV):



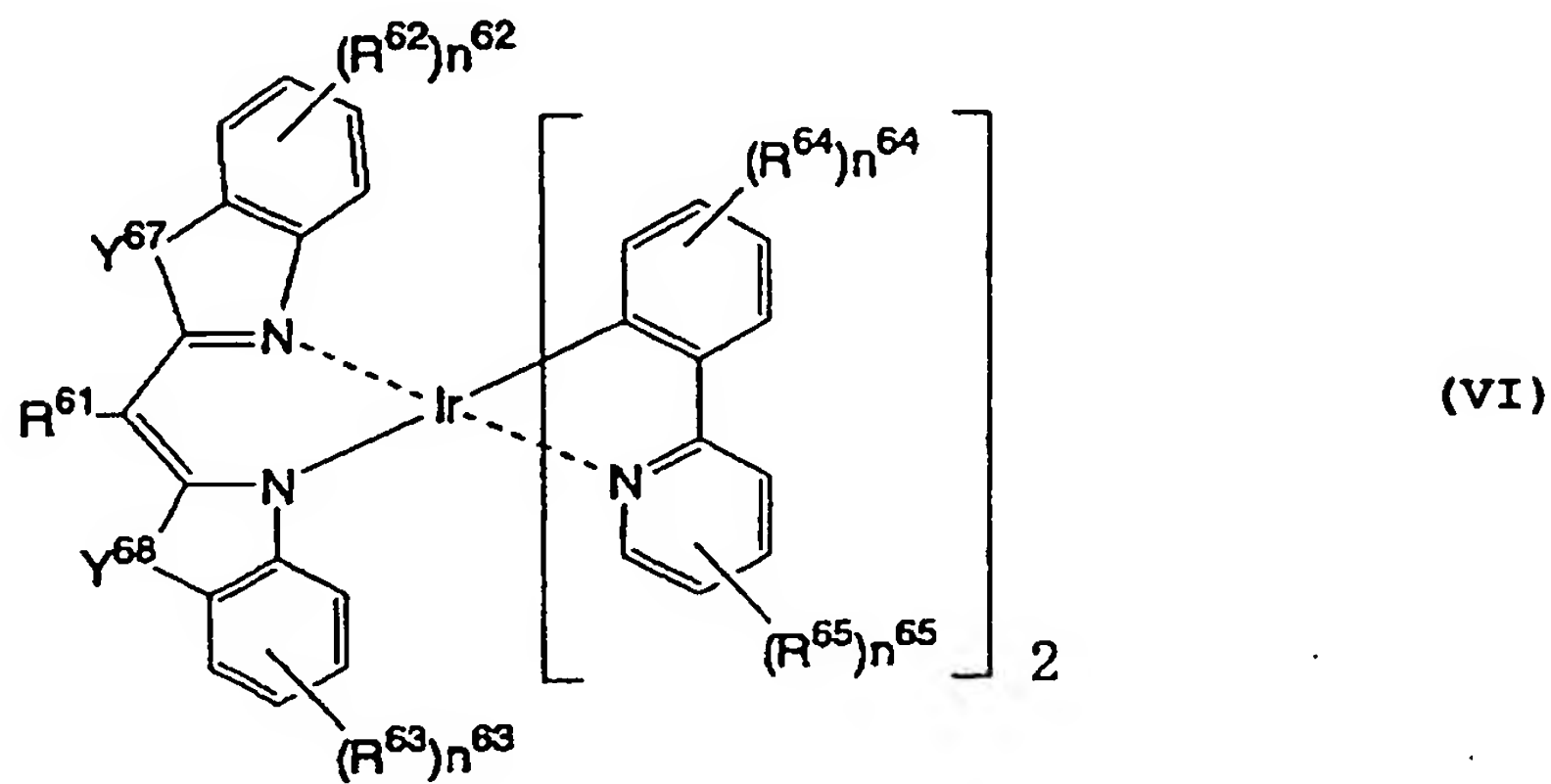
wherein R^{41} , R^{42} , R^{43} , R^{44} , and R^{45} each represent a hydrogen atom or a substituent; Y^{47} and Y^{48} each represent an oxygen atom, a sulfur atom, a quaternary carbon atom or a substituted or unsubstituted nitrogen atom; Q^{41} represents a group necessary to form an aromatic ring; Q^{42} represents a group necessary to form a nitrogen-containing heterocyclic ring; n^{41} and n^{42} each represent 1 or 2; and M^{41} represents a transition metal ion.

5. The organic electroluminescent device of claim 3,
 10 wherein the compound represented by the formula (III) is a compound represented by the formula (V):



wherein R^{51} , R^{52} , R^{53} , R^{54} , R^{55} , R^{56} , and R^{57} each represent a hydrogen atom or a substituent; Q^{51} represents a group necessary to form an aromatic ring; Q^{52} represents a group necessary to form a nitrogen-containing heterocyclic ring; n^{51} and n^{52} each represent 1 or 2; and M^{51} represents a transition metal ion.

6. The organic electroluminescent device of claim 5,
 wherein the compound represented by the formula (V) is a compound
 represented by the formula (VI):



wherein Y^{67} and Y^{68} each represent an oxygen atom, a sulfur atom,
 15 a quaternary carbon atom or a substituted or unsubstituted
 nitrogen atom; R^{61} , R^{62} , R^{63} , R^{64} , and R^{65} each represent a
 substituent; and n^{62} , n^{63} , n^{64} , and n^{65} each represent an integer
 of 0 to 4.

20 7. The organic electroluminescent device of claim 6,
 wherein n^{62} , n^{63} , n^{64} , and n^{65} each represent an integer of 0 to
 2.

8. The organic electroluminescent device of claim 6,
 25 wherein n^{62} , n^{63} , n^{64} , and n^{65} each represent an integer of 0 or

1.

9. The organic electroluminescent device of claim 6,
wherein n^{62} , n^{63} , n^{64} , and n^{65} each represent 0.

5

10. The organic electroluminescent device of claim 1,
wherein M^{11} represents an iridium ion, a platinum ion, a rhenium
ion or a ruthenium ion.

10

11. The organic electroluminescent device of claim 4,
wherein M^{11} represents an iridium ion, a platinum ion, a rhenium
ion or a ruthenium ion.

12. The organic electroluminescent device of claim 5,
15 wherein M^{11} represents an iridium ion, a platinum ion, a rhenium
ion or a ruthenium ion.

13. The organic electroluminescent device of claim 1,
wherein n^{11} represents 1 or 2.

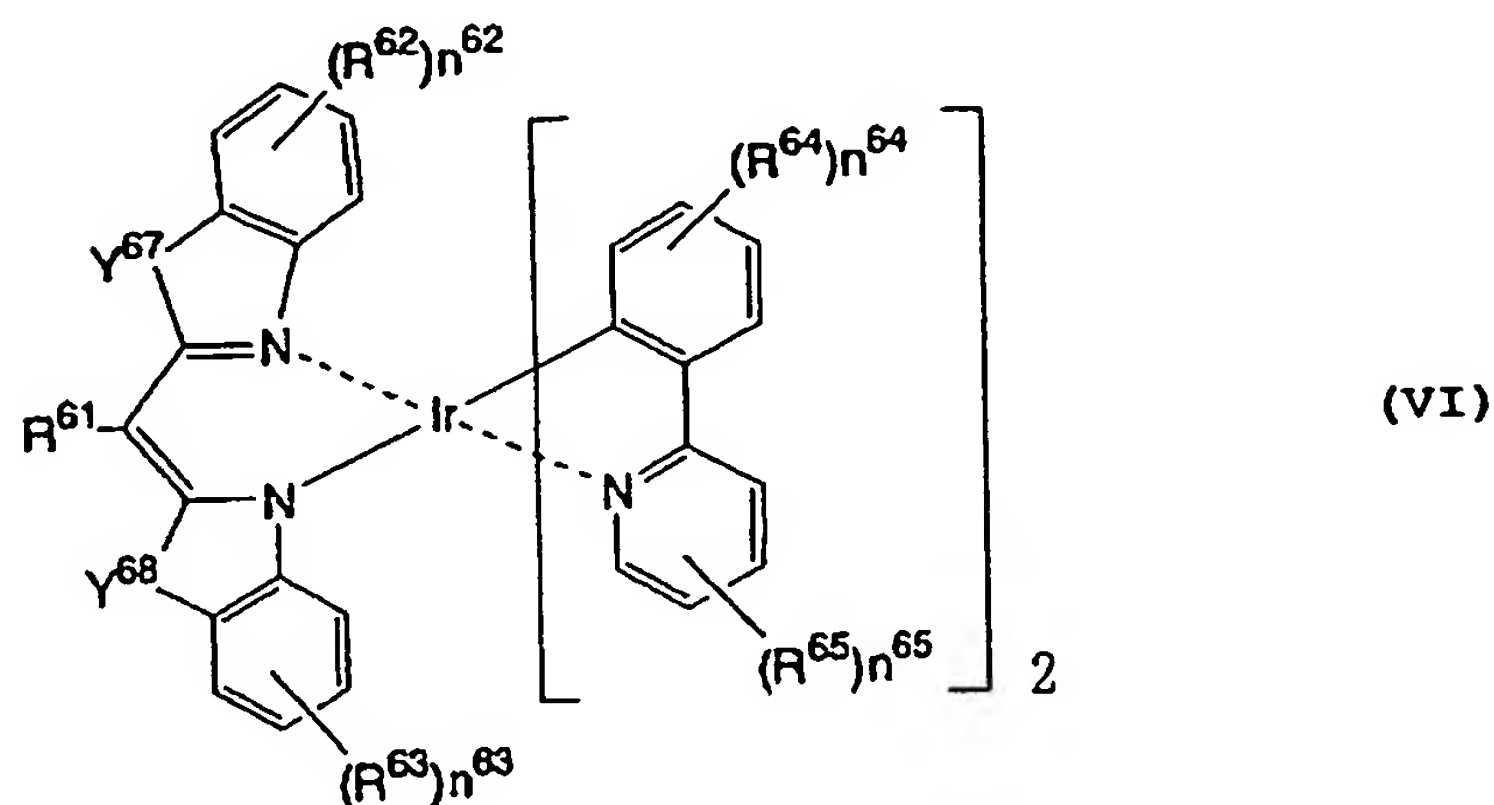
20

14. The organic electroluminescent device of claim 1,
wherein n^{12} represents an integer of 0 to 2.

15. The organic electroluminescent device of claim 1,
25 wherein n^{13} represents 0 or 1.

16. The organic electroluminescent device of claim 1,
wherein n^{13} represents 0.

5 17. A compound represented by the formula (VI):



15 wherein Y^{67} and Y^{68} each represent an oxygen atom, a sulfur atom,
a quaternary carbon atom or a substituted or unsubstituted
nitrogen atom; R^{61} , R^{62} , R^{63} , R^{64} , and R^{65} each represent a
substituent; and n^{62} , n^{63} , n^{64} , and n^{65} each represent an integer
of 0 to 4.

20

18. The compound of claim 17, wherein n^{62} , n^{63} , n^{64} , and
 n^{65} each represent an integer of 0 to 2.

19. The compound of claim 17, wherein n^{62} , n^{63} , n^{64} , and
25 n^{65} each represent an integer of 0 or 1.

20. The compound of claim 17, wherein n^{62} , n^{63} , n^{64} , and n^{65} each represent 0.

5

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(FILE 'HOME' ENTERED AT 08:37:33 ON 14 SEP 2005)

FILE 'HCAPLUS' ENTERED AT 08:37:48 ON 14 SEP 2005

E US20040065544/PN

L1 1 SEA ABB=ON PLU=ON US20040065544/PN
D ALL
SEL L1 RN

FILE 'REGISTRY' ENTERED AT 08:42:03 ON 14 SEP 2005

L2 13 SEA ABB=ON PLU=ON (15082-28-7/BI OR 25067-59-8/BI OR
337526-84-8/BI OR 358974-66-0/BI OR 50926-11-9/BI OR
58328-31-7/BI OR 65181-78-4/BI OR 677751-50-7/BI OR
70673-65-3/BI OR 7210-08-4/BI OR 7429-90-5/BI OR
7440-22-4/BI OR 7789-24-4/BI)
D SCAN
D L2 1-13 RN STR

FILE 'LREGISTRY' ENTERED AT 08:45:08 ON 14 SEP 2005

L3 STR
L4 STR L3

FILE 'REGISTRY' ENTERED AT 09:03:59 ON 14 SEP 2005

L5 50 SEA SSS SAM L3
L6 50 SEA SSS SAM L4
D QUE STAT L5
D QUE STAT L6
L7 SCR 1921 OR 1931 OR 1964
L8 50 SEA SSS SAM L3 AND L7
D QUE STAT
L9 140934 SEA SSS FUL L3 AND L7
SAV TEMP L9 GAR005/A
L10 50 SEA SUB=L9 SSS SAM L4
L11 8789 SEA SUB=L9 SSS FUL L4
SAV L11 GAR005A/A
D QUE STAT L9
D QUE STAT L10

FILE 'LREGISTRY' ENTERED AT 09:29:42 ON 14 SEP 2005

L12 STR L3

FILE 'REGISTRY' ENTERED AT 09:34:26 ON 14 SEP 2005

L13 50 SEA SUB=L9 SSS SAM L12

FILE 'LREGISTRY' ENTERED AT 09:37:53 ON 14 SEP 2005

L14 STR L12

FILE 'REGISTRY' ENTERED AT 09:40:33 ON 14 SEP 2005

L15 50 SEA SUB=L9 SSS SAM L14
D QUE STAT
D QUE STAT L13
L16 50 SEA SUB=L11 SSS SAM L14
L17 85274 SEA SUB=L9 SSS FUL L14
D QUE STAT L11
SAV L17 GAR005B/A

FILE 'LREGISTRY' ENTERED AT 09:47:54 ON 14 SEP 2005

L18 STR L14

FILE 'REGISTRY' ENTERED AT 09:57:28 ON 14 SEP 2005

L19 4 SEA SUB=L9 SSS SAM L18

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      D SCAN
      D QUE STAT
L20    82 SEA SUB=L9 SSS FUL L18
      SAV L20 GAR005C/A
L21    1 SEA ABB=ON  PLU=ON  L20 AND (1/IR OR 1/RE OR 1/RU OR
      1/PT)
      D SCAN
      D QUE STAT
L22    1 SEA ABB=ON  PLU=ON  L20 AND (1-3/IR OR 1-3/RE OR 1-3/RU
      OR 1-3/PT)
      D SCAN
      D QUE STAT
L23    5388 SEA ABB=ON  PLU=ON  L17 AND (1-3/IR OR 1-3/RE OR 1-3/RU
      OR 1-3/PT)

      FILE 'HCAPLUS' ENTERED AT 10:08:21 ON 14 SEP 2005
L24    92561 SEA ABB=ON  PLU=ON  L9
      D QUE STAT
L25    2989 SEA ABB=ON  PLU=ON  L11
L26    79964 SEA ABB=ON  PLU=ON  L17
L27    18 SEA ABB=ON  PLU=ON  L20
L28    1 SEA ABB=ON  PLU=ON  L21
L29    1 SEA ABB=ON  PLU=ON  L22
L30    2195 SEA ABB=ON  PLU=ON  L23
      D SCAN L28
      D SCAN L29
      D L29 HITSTR
L31    18 SEA ABB=ON  PLU=ON  L27 OR L28 OR L29
L32    QUE ABB=ON  PLU=ON  EL OR E(W)L OR L(W)E(W)D OR OLED OR
      ELECTROLUM!N? OR ORGANOLUM!N? OR (ELECTRO OR ORGANO OR
      ORG#) (2A)LUM!N? OR LIGHT? (2A) (EMIT? OR EMISSION? OR
      SOURCE?)
L33    QUE ABB=ON  PLU=ON  (LUMINES##### OR FLUORES? OR
      PHOSPHORES?)/BI,AB OR LED/IT OR PHOSPHOR# OR LUMIN?
      D QUE STAT L31
      D QUE STAT L32
      D QUE STAT L33
L34    1355 SEA ABB=ON  PLU=ON  L32 AND L24
L35    160 SEA ABB=ON  PLU=ON  L32 AND L25
L36    1338 SEA ABB=ON  PLU=ON  L32 AND L26
L37    159 SEA ABB=ON  PLU=ON  L32 AND L30
L38    160 SEA ABB=ON  PLU=ON  L35 OR L37
L39    1355 SEA ABB=ON  PLU=ON  L34 OR L36
L40    513 SEA ABB=ON  PLU=ON  L33 AND (L25 OR L30)
      D QUE STAT L33
L41    3686 SEA ABB=ON  PLU=ON  L33 AND (L24 OR L26)
L42    936273 SEA ABB=ON  PLU=ON  ELECTROD? OR CATHOD? OR ANOD?
L43    1355 SEA ABB=ON  PLU=ON  (L34 OR L35 OR L36 OR L37 OR L38 OR
      L39)
L44    3686 SEA ABB=ON  PLU=ON  (L40 OR L41)
L45    604 SEA ABB=ON  PLU=ON  L43 AND L42
L46    QUE ABB=ON  PLU=ON  FILM? OR THINFILM? OR LAYER? OR
      OVERLAY? OR OVERLAID? OR LAMIN? OR LAMEL? OR MULTILAYER?
      OR SHEET? OR COAT? OR TOPCOAT? OR OVERCOAT?
L47    571 SEA ABB=ON  PLU=ON  L45 AND L46
L48    44 SEA ABB=ON  PLU=ON  L38 AND L42
L49    41 SEA ABB=ON  PLU=ON  L48 AND L46
L50    44 SEA ABB=ON  PLU=ON  L48 OR L49
L51    43 SEA ABB=ON  PLU=ON  L50 NOT L31
      D QUE STAT
L52    31720 SEA ABB=ON  PLU=ON  ORG? (2A)LAYER?
L53    232 SEA ABB=ON  PLU=ON  L52 AND L47

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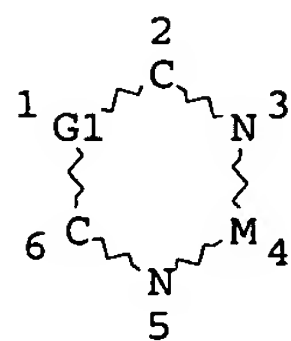

L54 212 SEA ABB=ON PLU=ON L53 NOT (L31 OR L51)
 D QUE STAT
 L55 44 SEA ABB=ON PLU=ON L35 AND L42
 L56 20 SEA ABB=ON PLU=ON L55 AND L52
 L57 44 SEA ABB=ON PLU=ON L50 OR L55
 L58 44 SEA ABB=ON PLU=ON L56 OR L51
 L59 1 SEA ABB=ON PLU=ON L31 AND L32
 D SCAN
 L60 18 SEA ABB=ON PLU=ON L59 OR L31

FILE 'LREGISTRY' ENTERED AT 10:46:55 ON 14 SEP 2005
 L61 STR L18

FILE 'REGISTRY' ENTERED AT 10:49:46 ON 14 SEP 2005
 L62 0 S L61 SSS SAM SUB=L9
 L63 1 S L61 SSS FUL SUB=L9

FILE 'HCAPLUS' ENTERED AT 10:51:35 ON 14 SEP 2005
 L64 1 S L63
 L65 43 S L58 NOT (L60 OR L64)

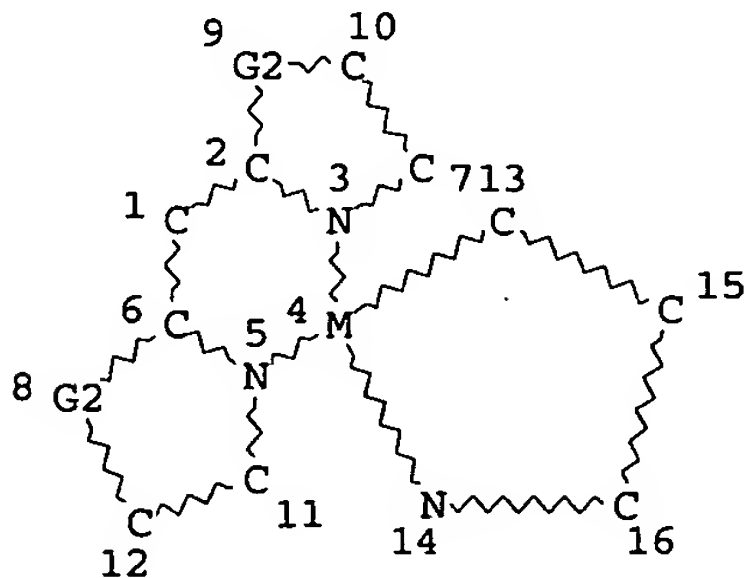
=> => d que stat l60
 L3 STR



VAR G1=C/N
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE
 L7 SCR 1921 OR 1931 OR 1964
 L9 140934 SEA FILE=REGISTRY SSS FUL L3 AND L7
 L18 STR



VAR G2=C/N/O/S
 NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
MLEVEL IS CLASS AT 10 11 12
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS UNLIMITED AT 10 11 12

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 16

STEREO ATTRIBUTES: NONE

L20 82 SEA FILE=REGISTRY SUB=L9 SSS FUL L18
L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON L20 AND (1/IR OR 1/RE
OR 1/RU OR 1/PT)
L22 1 SEA FILE=REGISTRY ABB=ON PLU=ON L20 AND (1-3/IR OR
1-3/RE OR 1-3/RU OR 1-3/PT)
L27 18 SEA FILE=HCAPLUS ABB=ON PLU=ON L20
L28 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L21
L29 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L22
L31 18 SEA FILE=HCAPLUS ABB=ON PLU=ON L27 OR L28 OR L29
L32 QUE ABB=ON PLU=ON EL OR E(W)L OR L(W)E(W)D OR OLED OR
ELECTROLUM!N? OR ORGANOLUM!N? OR (ELECTRO OR ORGANO OR OR
G#) (2A)LUM!N? OR LIGHT? (2A) (EMIT? OR EMISSION? OR SOURCE?
)
L59 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L31 AND L32
L60 18 SEA FILE=HCAPLUS ABB=ON PLU=ON L59 OR L31

=> d 160 1-18 cbib abs hitstr hitind

L60 ANSWER 1 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:293206 Document No. 140:329330 organicelectroluminescent
devices containing transition metal complex. Igarashi, Tatsuya;
Watanabe, Kohsuke (Fuji Photo Film Co., Ltd., Japan). U.S. Pat.
Appl. Publ. US 2004065544 A1 20040408, 17 pp. (English). CODEN:
USXXCO. APPLICATION: US 2003-670005 20030925. PRIORITY: JP
2002-287390 20020930.

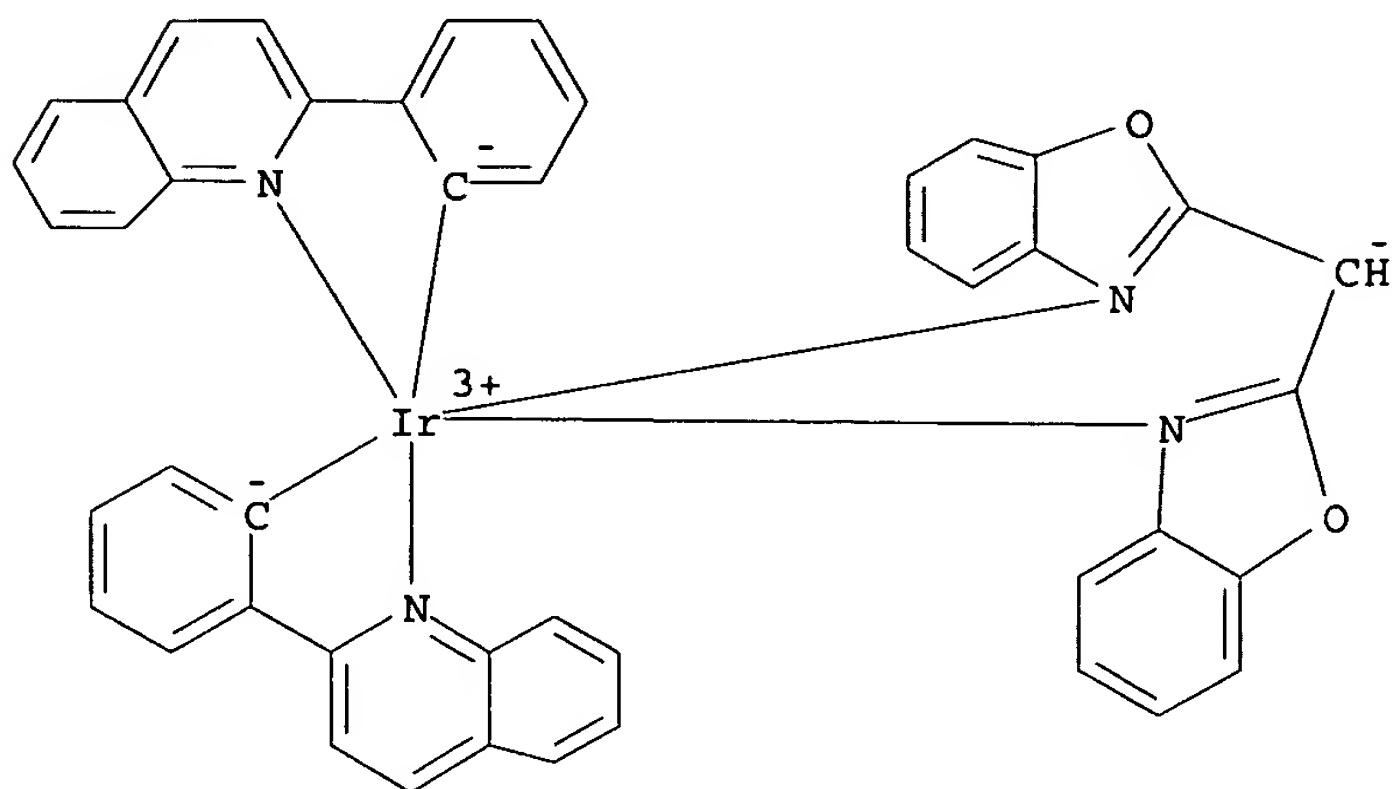
GI

(Application)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Organic **electroluminescent** devices are described described
which comprise: a pair of electrodes; and at least one organic layer
provided between the pair of electrodes, at least one of the at
least one organic layer being **alight emitting**
layer, where the **light-emitting** layer comprises
a compound represented by the formula (I), where R11 and R12 each
represent a hydrogen atom or a substituent; Y11, Y12, and Y13 each
represent a substituted or unsubstituted carbon atom, a substituted
or unsubstituted nitrogen atom, an oxygen atom or a sulfur atom; M11
represents a transition metal ion; L11 represents a ligand; X11
represents a counter ion; n11 represents an integer of 1 to 3; n12
represents an integer of 0 to 4; and n13 represents an integer of 0
to 4; with proviso that a compound in which R11 and R12 are connected
together to form a porphyrin ring is excluded. A compound represented
by the formula (II) are discussed, where Y67 and Y68 each represents
an oxygen atom, a sulfur atom, a quaternary carbon atom or a
substituted or unsubstituted nitrogen atom; R61, R62, R63, R64, and
R65 each represents a substituent; and n62, n63, n64, and n65 each
represents an integer of 0 to 4.

IT 677751-50-7P
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (organic electroluminescent devices containing transition metal complex)
 RN 677751-50-7 HCAPLUS
 CN Iridium, [[2,2'-methylenebis[benzoxazolatoκN3]](1-)]bis[2-(2-quinolinyl-κN)phenyl-κC] - (9CI) (CA INDEX NAME)



IC ICM C09K011-06
 INCL 204296000; 252301160
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76, 78
 ST transition metal complex org electroluminescent device
 OELD
 IT Transition metal complexes
 RL: DEV (Device component use); USES (Uses)
 (organic electroluminescent devices containing transition metal complex)
 IT Electroluminescent devices
 (organic; organic electroluminescent devices containing transition metal complex)
 IT 7429-90-5, Aluminum, uses 7440-22-4, Silver, uses 7789-24-4, Lithium fluoride, uses 50926-11-9, ITO 58328-31-7 65181-78-4, TPD 70673-65-3 358974-66-0
 RL: DEV (Device component use); USES (Uses)
 (organic electroluminescent devices containing transition metal complex)
 IT 15082-28-7 25067-59-8, Polyvinylcarbazole
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (organic electroluminescent devices containing transition metal complex)
 IT 677751-50-7P
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (organic electroluminescent devices containing transition metal complex)
 IT 7210-08-4 337526-84-8
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (organic electroluminescent devices containing transition metal complex)

L60 ANSWER 2 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

2003:894855 Document No. 140:77235 Dinuclear and Octanuclear Mn(II) Complexes with μ_2 -C, μ_2 -N(Pyrrolide), and μ - η^1 : η^5 -(Pyrrolide) Bridges: A Structural and Magnetic Study. Crewdson, Patrick; Gambarotta, Sandro; Yap, Glenn P. A.; Thompson, Laurence K. (Departments of Chemistry, University of Ottawa, Ottawa, ON, K1N 6N5, Can.). Inorganic Chemistry, 42(25), 8579-8584 (English) 2003. CODEN: INOCAJ. ISSN: 0020-1669. OTHER SOURCES: CASREACT 140:77235. Publisher: American Chemical Society.

AB Reaction of the dinuclear $[(CH_2SiMe_3)\mu-CH_2SiMe_3]Mn(THF)]_2$ (1) with an equivalent amount of 1,1-di-2-pyrrolylcyclohexane afforded two compds. depending on the solvent employed. Reaction carried out in THF afforded the dinuclear $\{[1,1-\mu-C_4H_3N)(C_4H_3N)C_6H_{10}]Mn(THF)_2\}_2 \cdot 2(THF)$ (2) while reaction in toluene yielded the octanuclear and cyclic cluster $\{[1,1-\mu,\eta^1:\eta^5-C_4H_3N)2C_6H_{10}]Mn\}_8 \cdot 4(toluene)$ (3). The magnetism in all three cases is dominated by intramol. antiferromagnetic exchange with strong coupling in 1 ($J = -85 \text{ cm}^{-1}$), and in 2 ($J = -23.2 \text{ cm}^{-1}$), whereas substantially weaker coupling through the σ/π -bonded dipyrrolide bridges ($J = -3.3 \text{ cm}^{-1}$) was observed within the cyclic and octameric 3. The crystal structures of 1-3 were determined

IT 639513-52-3P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(crystal structure; preparation, crystal structure, and magnetic study of pyrrolide bridged dinuclear and octanuclear manganese complexes)

RN 639513-52-3 HCAPLUS

CN Manganese, octakis μ - $[[(2,3,4,5-\eta:2',3',4',5'-\eta) -2,2'$ -cyclohexylidenebis[1H-pyrrolato $\kappa N:\kappa N$]](2-))]octa-, cyclo, compd. with methylbenzene (1:4) (9CI) (CA INDEX NAME)

CM 1

CRN 639513-50-1

CMF C112 H128 Mn8 N16

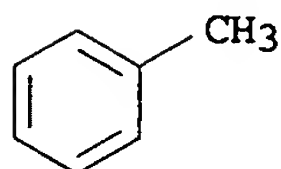
CCI CCS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 108-88-3

CMF C7 H8



IT 639513-50-1P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(mol. structure; preparation, crystal structure, and magnetic study of pyrrolide bridged dinuclear and octanuclear manganese complexes)

RN 639513-50-1 HCAPLUS

CN Manganese, octakis μ - $[[(2,3,4,5-\eta:2',3',4',5'-\eta) -2,2'$ -cyclohexylidenebis[1H-pyrrolato $\kappa N:\kappa N$]](2-))]octa-,

cyclo (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 29-11 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 75, 77, 78

IT 639513-52-3P 640282-26-4P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(crystal structure; preparation, crystal structure, and magnetic study of pyrrolide bridged dinuclear and octanuclear manganese complexes)

IT 639513-49-8P 639513-50-1P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(mol. structure; preparation, crystal structure, and magnetic study of pyrrolide bridged dinuclear and octanuclear manganese complexes)

L60 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

2003:25147 Document No. 140:146179 Product class 11: organometallic complexes of zirconium and hafnium. Negishi, E.-I.; Takahashi, T. (Department of Chemistry, Purdue University, West Lafayette, IN, 47907, USA). Science of Synthesis, 2, 681-848 (English) 2003.

CODEN: SSCYJ9. Publisher: Georg Thieme Verlag.

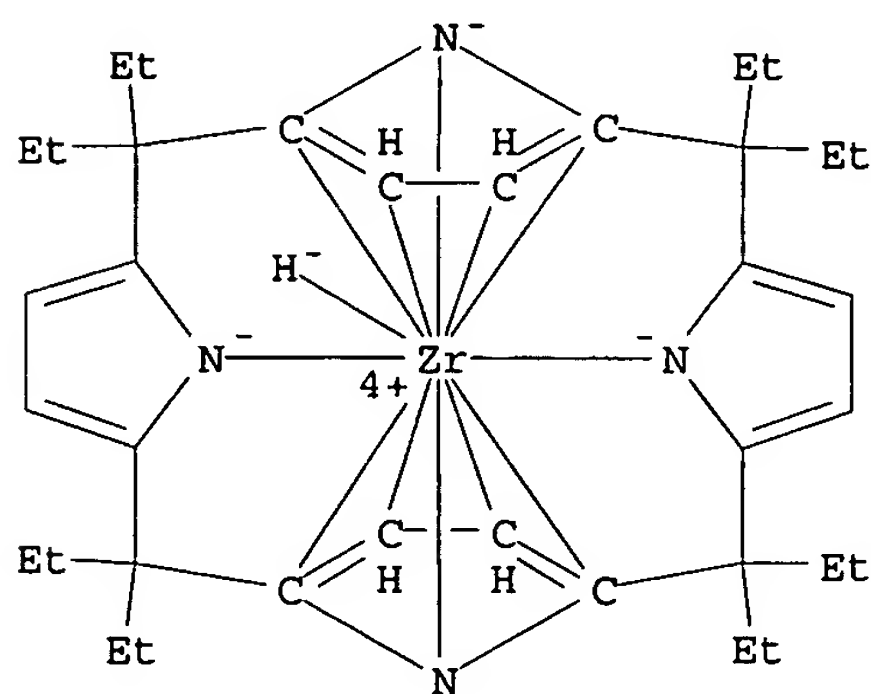
AB A review of application and preparation of organometallic complexes of zirconium and hafnium.

IT 148420-66-0P

RL: SPN (Synthetic preparation); PREP (Preparation)

(review of application and preparation of organometallic complexes of zirconium and hafnium)

RN 148420-66-0 HCAPLUS

CN Zirconate(1-), hydro[(1,2,3,4,11,12,13,14 η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(2-)- κ N21, κ N22, κ N23, κ N24]-, sodium, stereoisomer (9CI) (CA INDEX NAME)

CC 29-0 (Organometallic and Organometalloidal Compounds)

IT	132833-06-8P	132971-61-0P	133124-42-2P	133124-50-2P
	133124-51-3P	133124-53-5P	133445-49-5P	133817-35-3P
	133817-47-7P	135469-06-6P	135469-10-2P	135760-87-1P

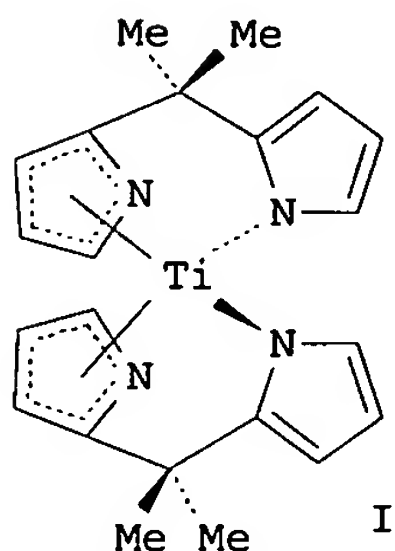
136795-58-9P	136795-59-0P	136863-34-8P	136938-09-5P
137203-38-4P	137203-39-5P	137203-40-8P	137203-41-9P
138313-30-1P	140656-89-9P	141261-03-2P	141778-08-7P
141778-09-8P	142839-70-1P	144675-67-2P	144675-71-8P
145102-30-3P	146000-04-6P	146000-06-8P	146000-09-1P
146785-01-5P	147134-97-2P	148185-16-4P	148185-18-6P
148420-66-0P	148751-68-2P	150292-97-0P	150293-30-4P
150293-31-5P	150615-38-6P	150615-41-1P	150615-43-3P
151231-52-6P	151460-63-8P	151966-41-5P	152337-81-0P
152337-82-1P	152468-82-1P	152468-83-2P	153882-80-5P
153882-81-6P	153882-82-7P	155233-30-0P	156822-61-6P
156956-51-3P	156956-52-4P	157524-50-0P	157524-51-1P
157524-52-2P	157524-53-3P	157674-46-9P	157726-43-7P
157836-01-6P	157945-84-1P	158634-85-6P	158634-86-7P
158634-87-8P	158634-88-9P	158634-89-0P	158634-90-3P
159531-49-4P	159531-50-7P	159540-10-0P	159541-81-8P
163090-92-4P	163090-93-5P	163237-37-4P	164586-17-8P
164586-18-9P	164586-19-0P	165824-96-4P	165965-12-8P
166767-92-6P	166825-64-5P	166825-65-6P	166825-67-8P
166825-68-9P	166942-54-7P	166987-96-8P	166987-97-9P
167171-14-4P	168285-78-7P	169052-45-3P	169052-47-5P
169524-15-6P	169524-16-7P	170384-64-2P	170504-17-3P
170504-18-4P	171293-02-0P	171483-07-1P	173163-41-2P
173163-42-3P	173467-32-8P	173603-41-3P	173603-42-4P
173603-43-5P	174745-06-3P	174848-62-5P	174848-63-6P
174872-32-3P	177327-40-1P	177327-41-2P	177327-46-7P
177595-79-8P	177595-80-1P	177595-81-2P	181823-02-9P
183376-38-7P	183376-40-1P	183577-98-2P	183577-99-3P
183578-00-9P	183592-09-8P	184033-99-6P	184047-36-7P
184704-24-3P	185549-24-0P	185549-28-4P	187328-48-9P
187328-50-3P	187328-52-5P	188051-70-9P	188130-16-7P
188401-00-5P	189753-80-8P	191468-82-3P	192726-11-7P
193068-99-4P	193069-00-0P	193483-51-1P	193680-94-3P
193680-95-4P	194472-46-3P	194472-49-6P	194808-69-0P
195152-16-0P	195152-17-1P	196512-86-4P	198284-68-3P
198284-80-9P	201603-78-3P	201726-35-4P	201726-44-5P
202914-52-1P	202914-53-2P	210040-74-7P	210288-76-9P
214217-99-9P	214218-03-8P	215668-24-9P	215668-28-3P
215668-29-4P	216970-03-5P	226088-03-5P	226088-04-6P
226088-05-7P	226557-26-2P	243870-27-1P	243969-84-8P
243969-85-9P	243969-86-0P	243969-87-1P	243969-88-2P
253202-78-7P	253202-79-8P	253202-80-1P	253202-81-2P
253202-82-3P	253202-83-4P	253869-09-9P	253869-11-3P
256377-10-3P	261926-22-1P	280784-23-8P	280784-28-3P
359715-30-3P	651300-53-7P	651300-59-3P	651300-65-1P
651300-91-3P	651300-95-7P	651301-00-7P	651301-02-9P
651301-12-1P	651301-56-3P	651301-64-3P	651301-67-6P
651301-71-2P	651301-75-6P	651301-79-0P	651301-83-6P
651301-89-2P	651301-92-7P	651301-97-2P	651302-00-0P
651302-05-5P	651302-07-7P	651302-12-4P	651302-16-8P
651302-19-1P	651302-22-6P	651302-24-8P	651302-28-2P
651302-33-9P	651302-37-3P	651302-43-1P	651302-46-4P
651302-51-1P	651302-54-4P	651302-57-7P	651302-62-4P
651302-65-7P	651302-68-0P	651302-72-6P	651302-76-0P
651302-80-6P	651302-84-0P	651302-87-3P	651302-90-8P
651302-93-1P	651302-97-5P	651302-99-7P	651303-03-6P
651303-06-9P	651303-25-2P		

RL: SPN (Synthetic preparation); PREP (Preparation)

(review of application and preparation of organometallic complexes of zirconium and hafnium)

2002:884506 Document No. 138:338236 Titanium and zirconium complexes supported by dipyrrolide ligands. Novak, Andrew; Blake, Alexander J.; Wilson, Claire; Love, Jason B. (School of Chemistry, University of Nottingham, Nottingham, NG7 2RD, UK). Chemical Communications (Cambridge, United Kingdom) (23), 2796-2797 (English) 2002. CODEN: CHCOFS. ISSN: 1359-7345. OTHER SOURCES: CASREACT 138:338236. Publisher: Royal Society of Chemistry.

GI



AB The reactions between meso-disubstituted dipyrromethanes and titanium and zirconium amides and alkyls have generated the first examples of dipyrrolide complexes of Group 4 metals. Reaction of $R_2C(2-C_4H_3NH)$ ($2-C_4H_3NH = 2\text{-pyrrolyl}$; $H_2L_1 R = Me$; $H_2L_2 R = Ph$) with $Ti(NMe_2)_4$ gave $[\kappa N, \eta^5-Ln)Ti(NMe_2)_2]$ (2 L_1 , 3 L_2). Complex 2 undergoes comproportionation on treatment with Me_3SiCl to give $[(\kappa N, \eta^5-L_1)_2Ti]$ (5, shown as I). Reaction of L_1 with $Zr(CH_2Ph)_4$ afforded binuclear dipyrrolide bridged complex $[(\kappa N, \eta^5':\kappa N', \eta^5-L_1)[Zr(CH_2Ph)_3]]$ (1), and $Zr(NMe_2)_4$ in the same conditions gave $[Zr(NMe_2)_2L_1]$ (4), which was characterized by its NMR spectra. Crystal structures of 1 and 2 are reported. Ethylene was polymerized on 4/MAO catalyst, giving polymer with very high mol. weight ($M_w = 1.2 \cdot 10^6$) and high polydispersity.

IT 515864-01-4P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(crystal structure; preparation, structure and polymerization activity of titanium and zirconium amido complexes of meso-disubstituted dipyrromethanes)

RN 515864-01-4 HCAPLUS

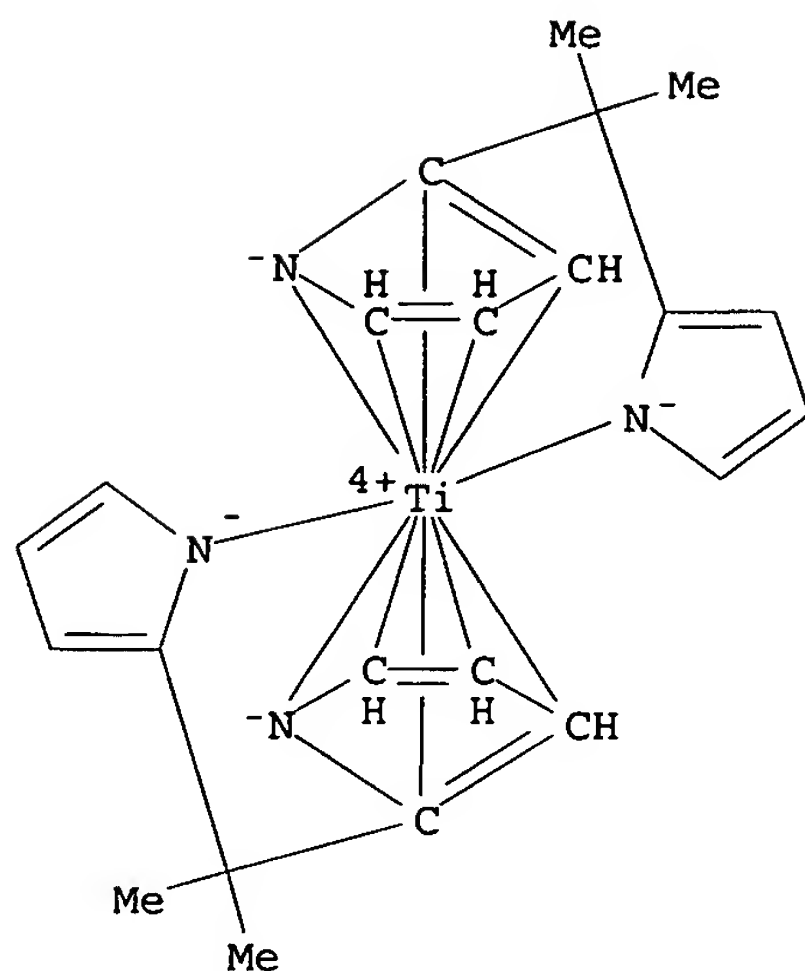
CN Titanium, bis[(1,2,3,4,5- η)-2-[1-methyl-1-(1H-pyrrol-2-yl- κN)ethyl]-1H-pyrrolato(2-)]-, stereoisomer, compd. with dichloromethane (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 515864-00-3

CMF C22 H24 N4 Ti

CCI CCS



CM 2

CRN 75-09-2
CMF C H2 Cl2

Cl-CH₂-Cl

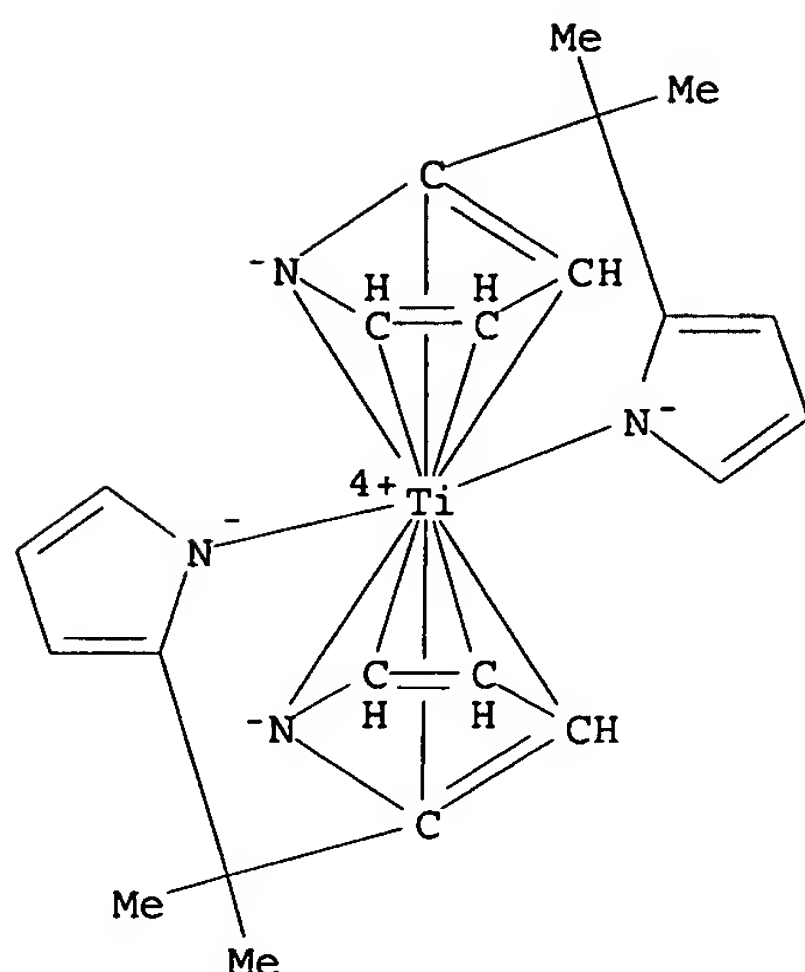
IT 515864-00-3P

RL: PRP (Properties); SPN (Synthetic preparation); PREP
(Preparation)

(mol. structure; preparation, structure and polymerization activity of
titanium and zirconium amido complexes of meso-disubstituted
dipyrromethanes)

RN 515864-00-3 HCAPLUS

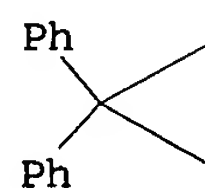
CN Titanium, bis[(2,3,4,5-η)-2-[1-methyl-1-(1H-pyrrol-2-yl-
κN)ethyl]-1H-pyrrolato(2-)-κN]-, stereoisomer (9CI) (CA
INDEX NAME)



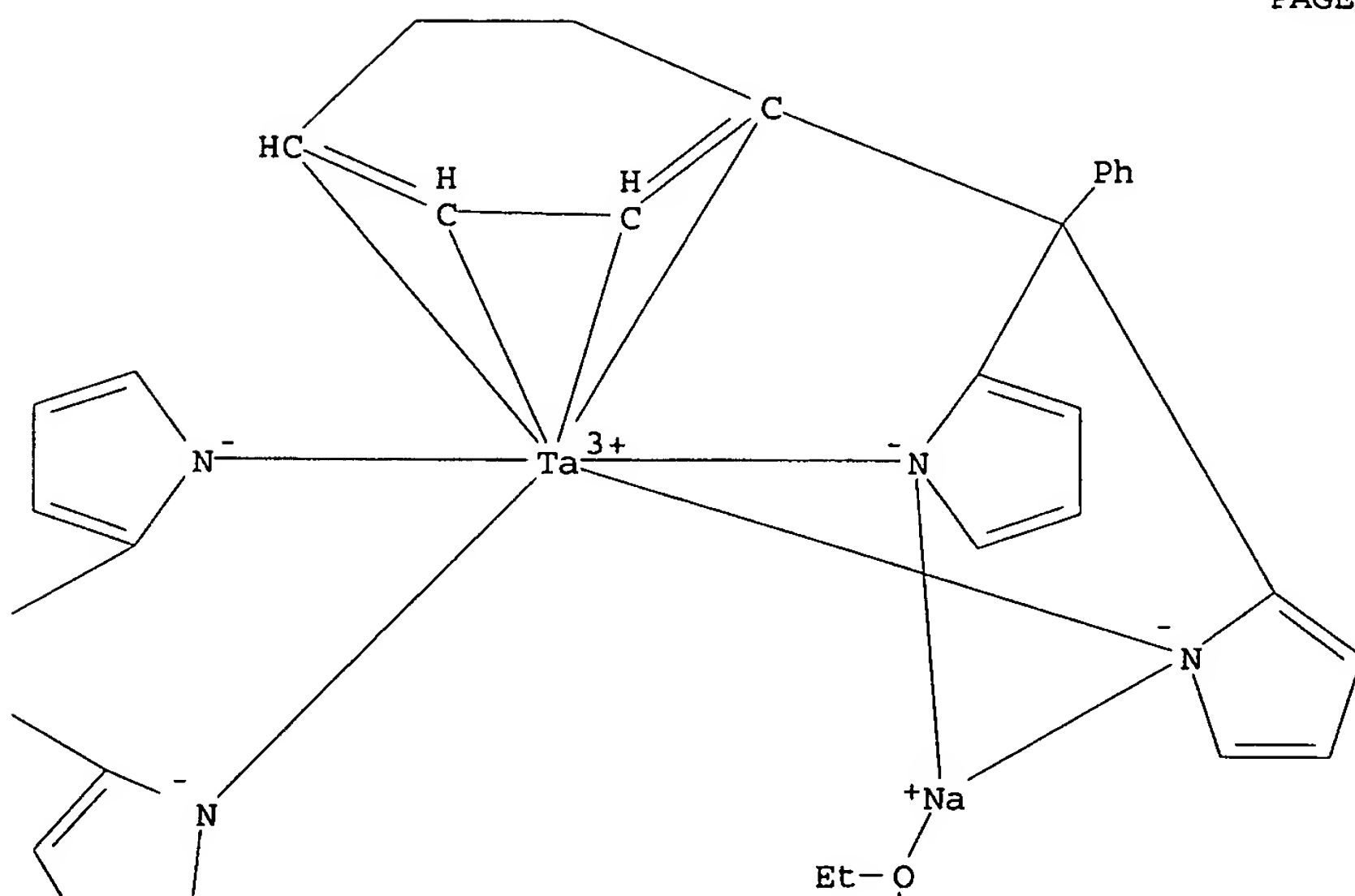
- CC 29-10 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 35, 75
- IT 515863-96-4P 515864-01-4P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(crystal structure; preparation, structure and polymerization activity of titanium and zirconium amido complexes of meso-disubstituted dipyrromethanes)
- IT 515864-00-3P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(mol. structure; preparation, structure and polymerization activity of titanium and zirconium amido complexes of meso-disubstituted dipyrromethanes)
- L60 ANSWER 5 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:638490 Document No. 137:325484 Tantalum Complexes of Diphenyldipyrrolide Dianion: Partial Hydrogenation of a Phenyl Ring. Aharonian, Ghazar; Gambarotta, Sandro; Yap, Glenn P. A. (Department of Chemistry, University of Ottawa, Ottawa, ON, K1N 6N5, Can.). Organometallics, 21(20), 4257-4263 (English) 2002. CODEN: ORGND7. ISSN: 0276-7333. OTHER SOURCES: CASREACT 137:325484. Publisher: American Chemical Society.
- AB The reactivity of the pentavalent dipyrrolide complex $\{[\text{Ph}_2\text{C}(\text{C}_4\text{H}_3\text{N})_2]_2\text{TaCl}_2\}\{\text{Li}(\text{THF})_4\} \cdot 2\text{THF}$ was investigated. While an isostructural di-Me derivative was readily prepared by treatment with MeLi, reaction with NaHBET_3 gave a major reorganization, affording a mixture of $[\text{Ph}_2\text{C}(\text{C}_4\text{H}_3\text{N})_2]\text{Ta}[(1,4\eta^1:\eta^1-2,3-\eta^2-\text{C}_6\text{H}_7\text{Ph})\text{C}(\text{C}_4\text{H}_3\text{N})_2][\text{Na}(\text{OEt}_2)]$ and $[\text{Ph}_2\text{C}(\text{C}_4\text{H}_3\text{N})_2]_3\text{Ta}[\text{Na}(\text{OEt}_2)]_2 \cdot (\text{OEt}_2)$. The first complex arises from partial hydrogenation of one of the ligand Ph rings performed by an intermediate Ta hydride. In the second case, ligand scrambling occurred along with reduction of the metal center. The crystal structure of all the compds. prepared is described.
- IT 473620-87-0P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation via reaction of diphenyldipyrrolide tantalum chloro

complex with sodium triethylborohydride and crystal structure of)
RN 473620-87-0 HCAPLUS
CN Sodium, μ -[[2,2'-[[[(1,2,3,4- η)-1,3-cyclohexadien-1-yl]phenylmethylene]bis[1H-pyrrolato κ N: κ N]](2-)]][[2,2'-(diphenylmethylene)bis[1H-pyrrolato κ N]](2-)]tantalum][1,1'-oxybis[ethane]]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



PAGE 2-B

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Et

CC 29-10 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75

IT 473620-87-0P 473620-89-2P
RL: PRP (Properties); SPN (Synthetic preparation); PREP
(Preparation)
(preparation via reaction of diphenyldipyrrolide tantalum chloro
complex with sodium triethylborohydride and crystal structure of)

L60 ANSWER 6 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
2000:690847 Document No. 134:17556 Tri- and Tetravalent and
Mixed-Valence Niobium Complexes Supported by a Tripodal
Tripyrrolylmethane Trianion. Tayebani, Maryam; Conoci, Sabrina;
Feghali, Khalil; Gambarotta, Sandro; Yap, Glenn P. A. (Centre for
Catalysis Research and Innovation Department of Chemistry,
University of Ottawa, Ottawa, ON, K1N 6N5, Can.). Organometallics,
19(22), 4568-4574 (English) 2000. CODEN: ORGND7. ISSN: 0276-7333.
Publisher: American Chemical Society.

AB The reaction of Nb₂Cl₆(TMEDA)₂ with the potassium salt of
tripyrrolylmethane in a 1:1 ratio afforded two products which have
been isolated and characterized. The first compound is the dinuclear
{[HC(C₄H₃N)₃]Nb(THF)}₂.2THF (1), with two trivalent and diamagnetic
metal centers bridged by two tripyrrolyl trianions. Each of the two
ligands adopted a rather unusual bridging mode, with two rings each
σ-bonding one of the two metal centers and the third both
π-bonded to one of the two niobium atoms and σ-bonded to
the other. The second product of the reaction is
{([H(C₄H₃N)₃]2NbK)₂}{Nb₄(TMEDA)4Cl₁₁[K(THF)₂]₂}.2THF (2), which
displays some unusual features. The complex is ionic, with the
cationic {Nb₄(TMEDA)4Cl₁₁[K(THF)₂]₂}²⁺ unit containing the metal in a
mixed-valence state. The two pos. charges of the cationic moiety
are balanced by two identical anionic {[HC(C₄H₃N)₃]2NbK)₂}⁻ units,
each containing Nb in the tetravalent state. Each anion is connected to
an identical one by the bridging potassium atom, thus assembling a
linear and anionic polymeric array. A similar reaction carried out
with the lithium salt of the tripyrrolide anion led instead to the
simple monomeric and tetravalent complex
{[HC(C₄H₃N)₃]2Nb}{Li(THF)₄}₂ (3). The crystal structures of 1-3
were determined

IT 309730-56-1P
RL: PRP (Properties); SPN (Synthetic preparation); PREP
(Preparation)
(preparation and crystal structure of)

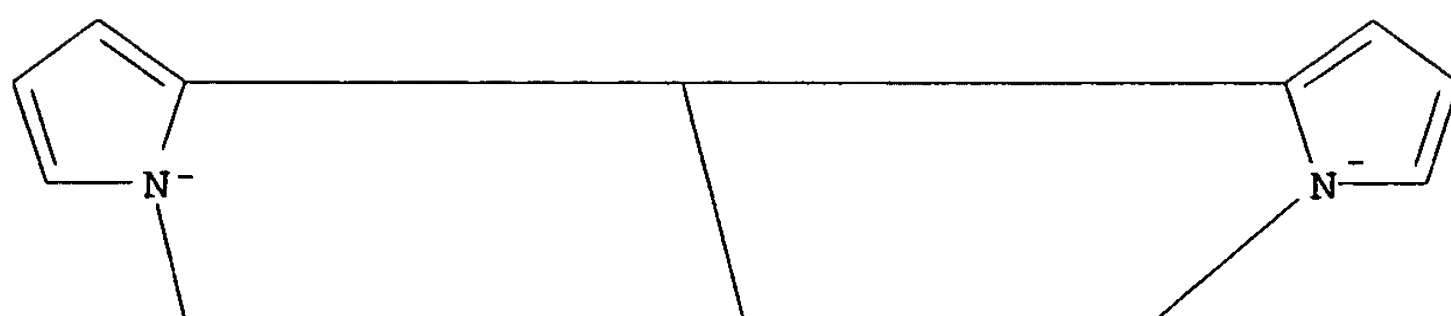
RN 309730-56-1 HCAPLUS

CN Niobium, rel-μ-[(2,3,4,5-η)-2-[(R)-di(1H-pyrrol-2-yl-
κN)methyl]-1H-pyrrolato(3-)-κN:κN]] [μ-[(2,3,4,5-
η)-2-[(S)-di(1H-pyrrol-2-yl-κN)methyl]-1H-pyrrolato(3-)-
κN:κN]]bis(tetrahydrofuran)di-, (Nb-Nb), stereoisomer,
compd. with tetrahydrofuran (1:2) (9CI) (CA INDEX NAME)

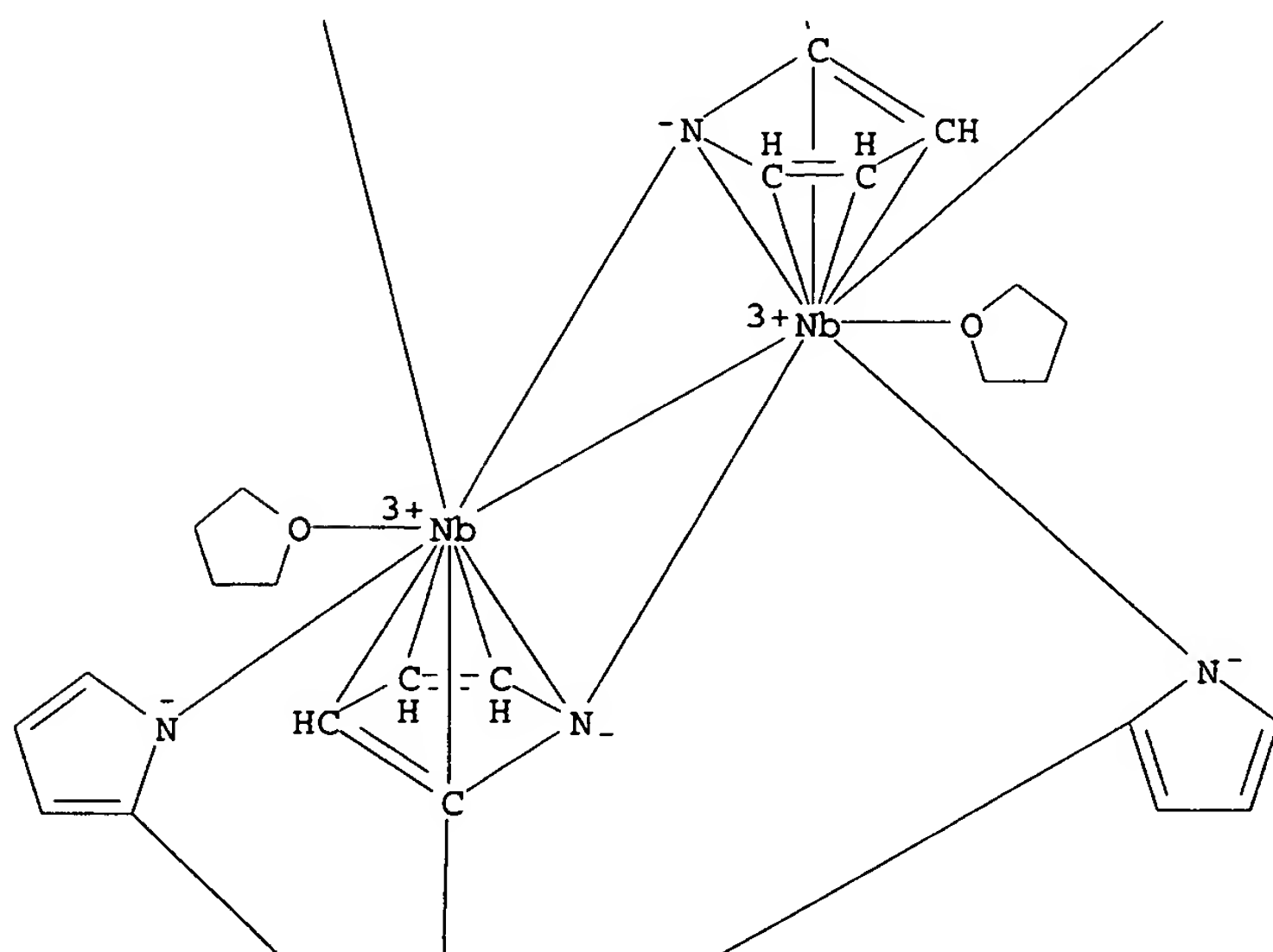
CM 1

CRN 309730-55-0
CMF C34 H36 N6 Nb2 O2
CCI CCS

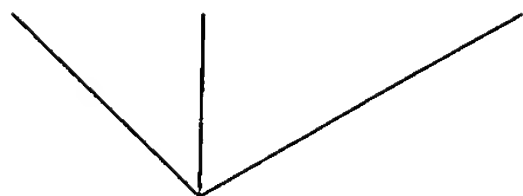
PAGE 1-A



PAGE 2-A



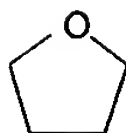
PAGE 3-A



CM 2

CRN 109-99-9

CMF C4 H8 O



CC 29-10 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 22, 75, 78

IT 309730-56-1P 309730-61-8P

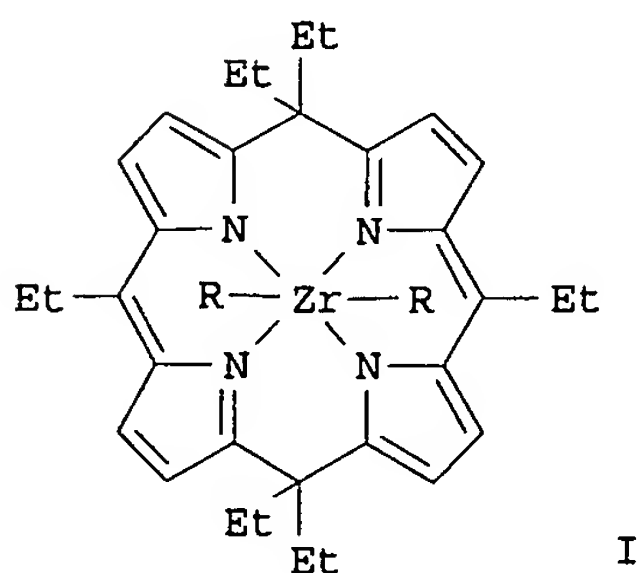
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and crystal structure of)

L60 ANSWER 7 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

1999:718028 Document No. 132:78646 Porphodimethene-Zirconium: A New Entry into Zirconium Macrocyclic Organometallic Chemistry. Bonomo, Lucia; Toraman, Guelsen; Solari, Euro; Scopelliti, Rosario; Floriani, Carlo (Institut de Chimie Minerale et Analytique BCH, Universite de Lausanne, Lausanne, CH-1015, Switz.). Organometallics, 18(25), 5198-5200 (English) 1999. CODEN: ORGND7. ISSN: 0276-7333. Publisher: American Chemical Society.

GI



AB The cis-dichloro-meso-hexaethylporphodimethene-Zr(IV) complex was functionalized to the corresponding dialkyl derivs. I [R = Me 3, PhCH₂ 4, Ph 5] displaying a variety of migratory pathways. In the case of benzyl derivative 4, the spontaneous migration of the 1st benzyl to the ligand, 6, is followed by the 2nd one, photochem. induced, thus forming a Zr-porphyrinogen complex. The Me derivative 3 undergoes thermally induced methane elimination with the metalation of the

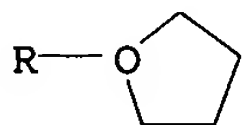
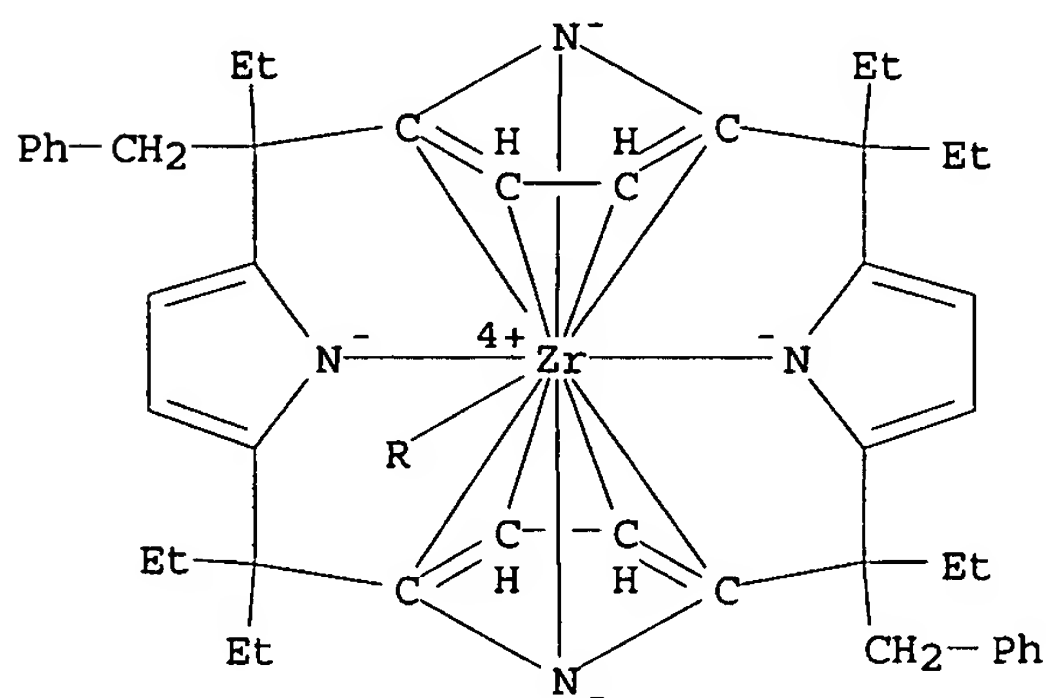
meso Et chains. Migration of both Me groups was observed in the reaction of 3 with ButNC, with the preliminary formation of η^2 -imine, rearranging to the corresponding enamine.

IT 253689-34-8P 253689-35-9P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 253689-34-8 HCAPLUS

CN Zirconium, [(1,2,3,4,11,12,13,14 η)-5,5,10,15,15,20-hexaethyl-5,10,15,20,22,24-hexahydro-10,20-bis(phenylmethyl)-21H,23H-porphinato(4-)- κ N21, κ N22, κ N23, κ N24] (tetrahydrofuran)- (9CI) (CA INDEX NAME)



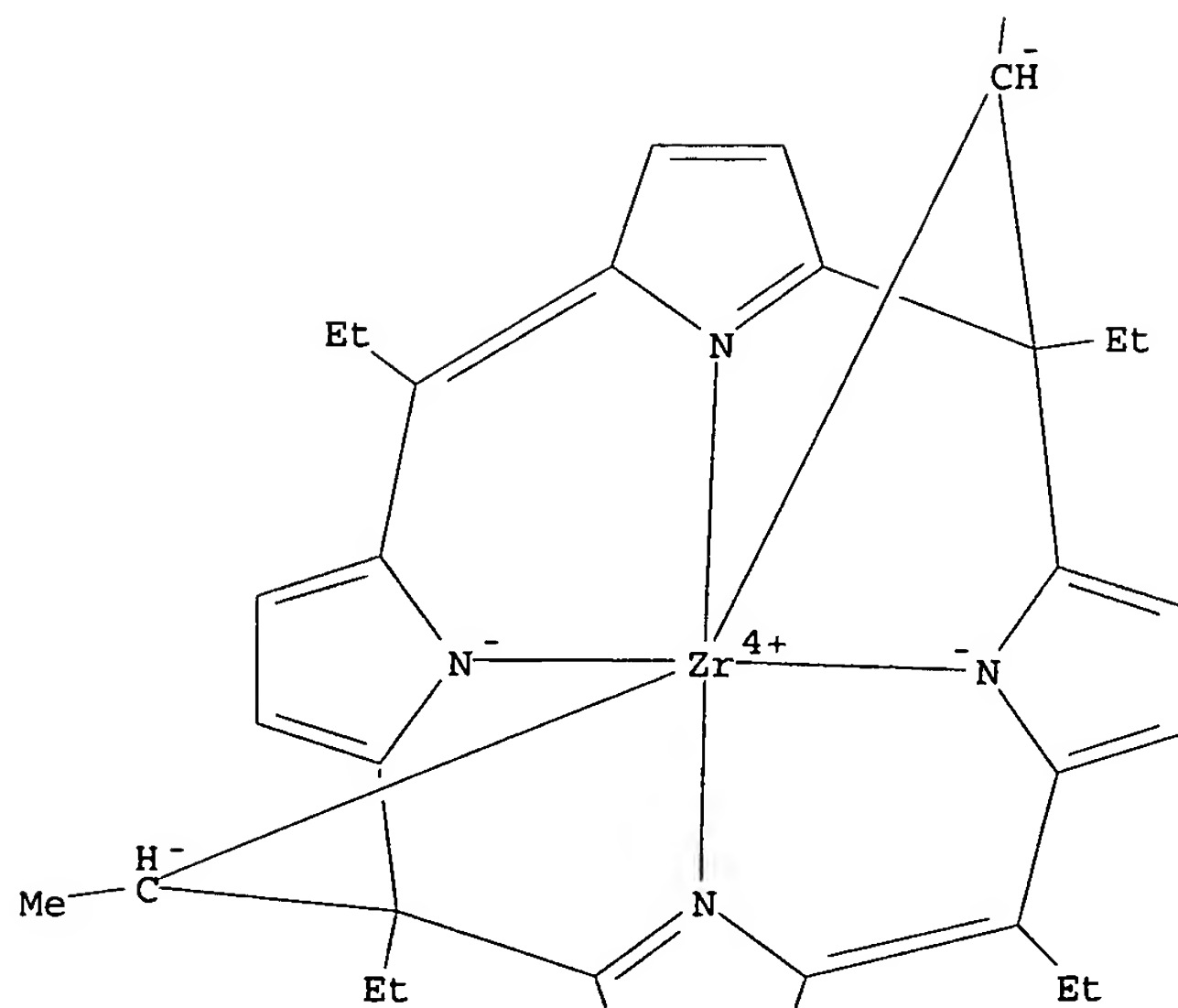
RN 253689-35-9 HCAPLUS

CN Zirconium, [rel-[(5R,15R)-5,10,15,20-tetraethyl-5,15-dihydro-21H,23H-porphine-5,15-diyl- κ N21, κ N22, κ N23, κ N24]di-(1S)-ethylidene]-, (TP-6-213)- (9CI) (CA INDEX NAME)

PAGE 1-A

Me
|

PAGE 2-A



PAGE 3-A

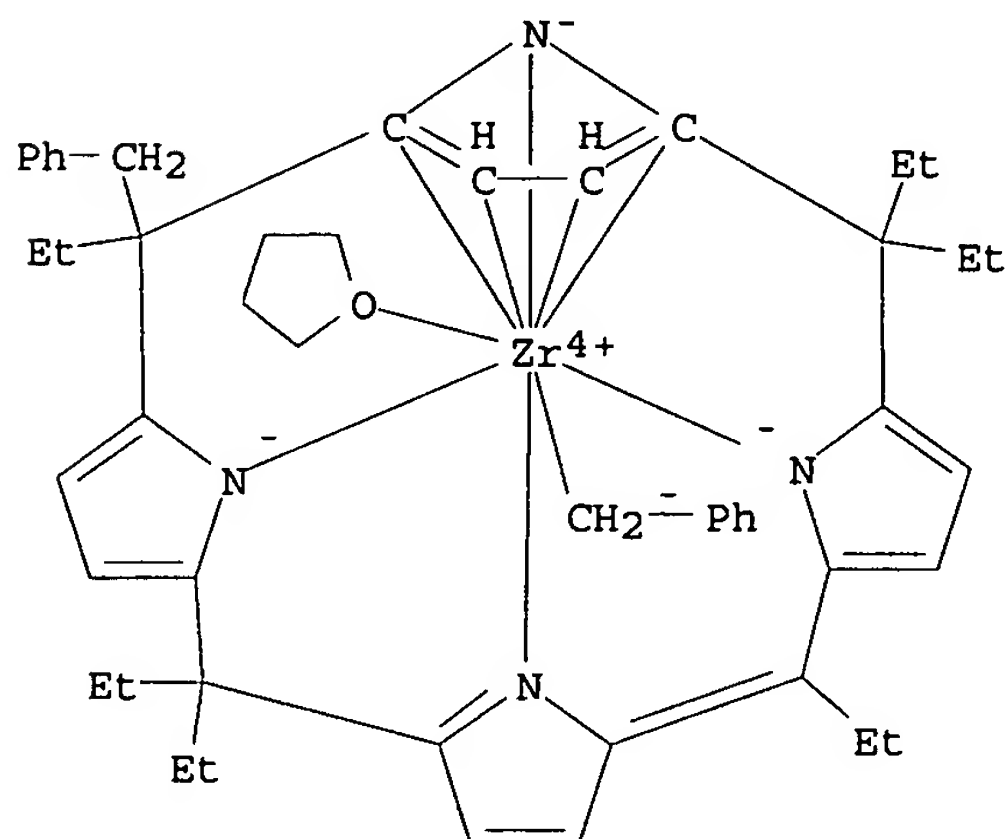


IT 253689-33-7P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
PREP (Preparation); RACT (Reactant or reagent)
(preparation, crystal structure, and photochem.-induced benzyl group
migration of)

RN 253689-33-7 HCAPLUS

CN Zirconium, [(6,7,8,9- η)-5,5,10,15,15,20-hexaethyl-5,10,15,22-
tetrahydro-10-(phenylmethyl)-21H,23H-porphinato(3-)-
 κ N21, κ N22, κ N23, κ N24](phenylmethyl)(tetrahydr
ofuran)-, stereoisomer (9CI) (CA INDEX NAME)



CC 29-10 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 74, 75, 78

IT 253689-31-5P 253689-32-6P 253689-34-8P
253689-35-9P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 253689-33-7P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
PREP (Preparation); RACT (Reactant or reagent)
(preparation, crystal structure, and photochem.-induced benzyl group
migration of)

L60 ANSWER 8 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

1997:318237 Document No. 127:56365 Metal-Assisted Cleavage of the
Porphyrinogen Skeleton: Reaction of meso-Octaethylporphyrinogen
Complexes with Benzaldehyde. Solari, Giovanna; Solari, Euro;
Lemercier, Gilles; Floriani, Carlo; Chiesi-Villa, Angiola; Rizzoli,
Corrado (Institut de Chimie Minerale et Analytique, Universite de
Lausanne, Lausanne, CH-1015, Switz.). Inorganic Chemistry, 36(12),
2691-2695 (English) 1997. CODEN: INOCAJ. ISSN: 0020-1669.
Publisher: American Chemical Society.

AB Titanium and zirconium assist, in the corresponding
meso-octaethylporphyrinogen complexes [η^1 - η^1 - η^1 - η^1 -
Et₈N₄)Ti(thf)₂] (1) and [η^5 - η^1 - η^5 - η^1 -Et₈N₄)Zr(thf)]

(2), the electrophilic attack of benzaldehyde to the α -carbons of the pyrrolic rings, resulting in modified forms or cleavage of the porphyrinogen skeleton. In the case of the less oxophilic titanium, the intermediate pentadentate [N4O] modified porphyrinogen has been trapped in the complex $[\eta^1-\eta^1-\eta^1-\eta^5-\text{Et}_8\text{N}_4-\text{CH}(\text{Ph})-\text{O}\}\text{Ti}]$ (3), while in the case of zirconium the reaction proceeds further as a function of the Zr/PhCHO ratio. With two equivalent of PhCHO opening of the porphyrinogen ring in $[(\eta^1-\eta^1-\eta^1-\eta^5-\text{Et}_8\text{N}_4-\text{Ph}(\text{CO})\text{ZrOCH}_2\text{Ph})]$ (6) is observed, assisted by the disproportionation of PhCHO. The further addition of two equivalent of PhCHO proceeds through the same pathway leading to the formation of a doubly functionalized hemiporphyrinogen complex $[\{\text{Et}_4\text{N}_2(\text{PhCO})_2\}_2\text{Zr}_2\mu-\text{OCH}_2\text{Ph})_2]$ (7).

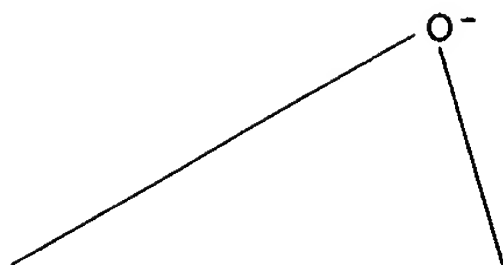
IT 191087-97-5P 191087-99-7P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(crystal structure; metal-assisted cleavage of porphyrinogen skeleton and reaction of meso-octaethylporphyrinogen complexes with benzaldehyde)

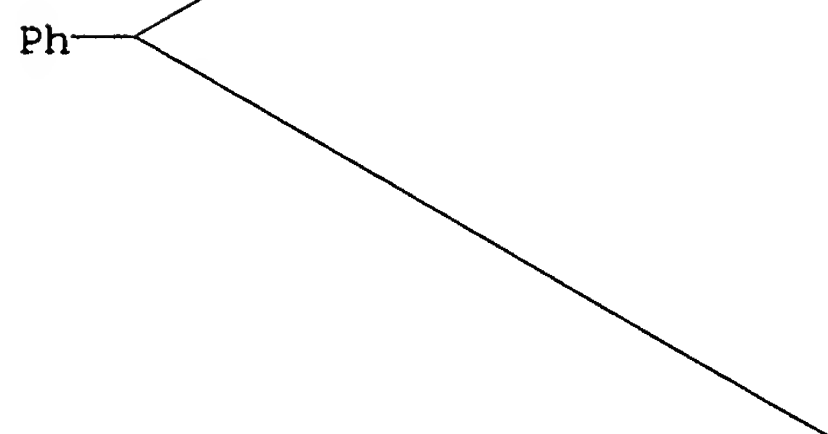
RN 191087-97-5 HCAPLUS

CN Titanium, $[(16,17,18,19-\eta)-5,5,10,10,15,15,20,20\text{-octaethyl-10,15,20,24-tetrahydro-}\alpha\text{-phenyl-21H,23H-porphine-9(5H)-methanolato(4-)-}\kappa\text{N21},\kappa\text{N22},\kappa\text{N23},\kappa\text{N24},\kappa\text{O9)]-}$, stereoisomer (9CI) (CA INDEX NAME)

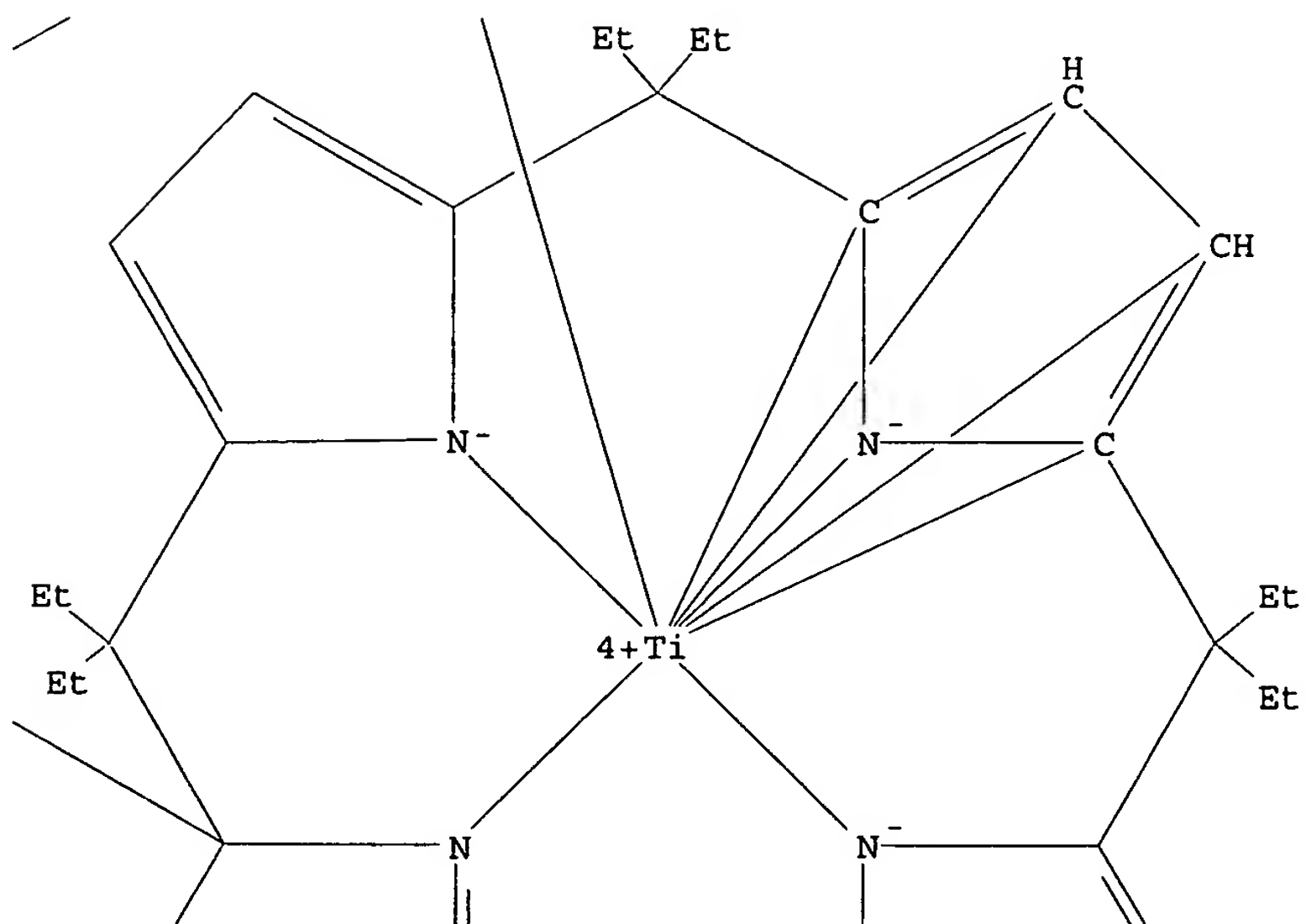
PAGE 1-B



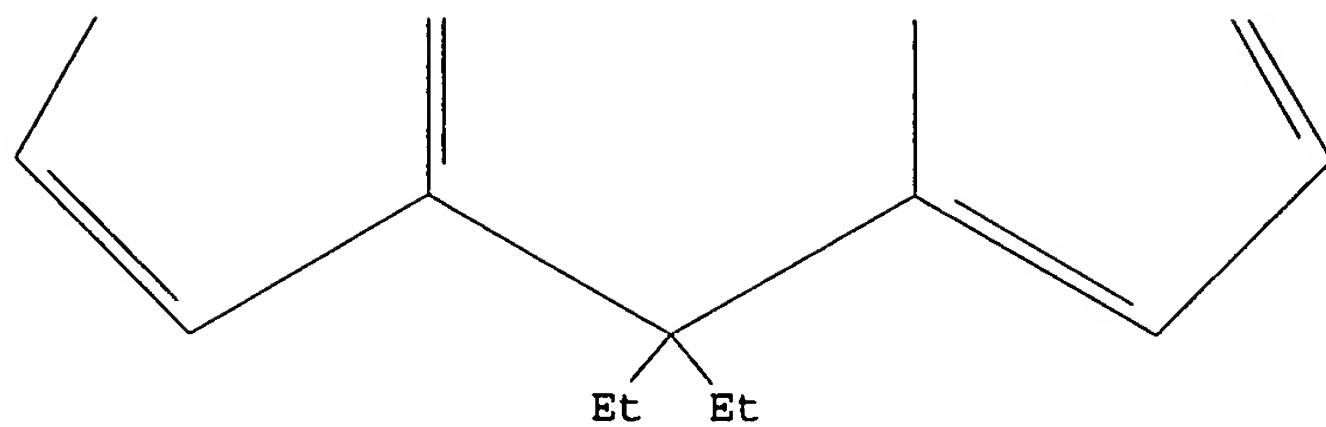
PAGE 2-A



PAGE 2-B

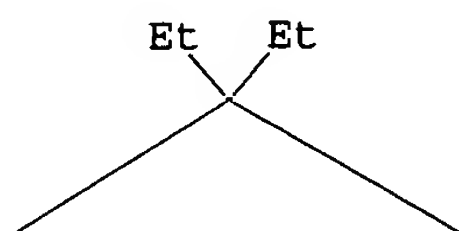


PAGE 3-B

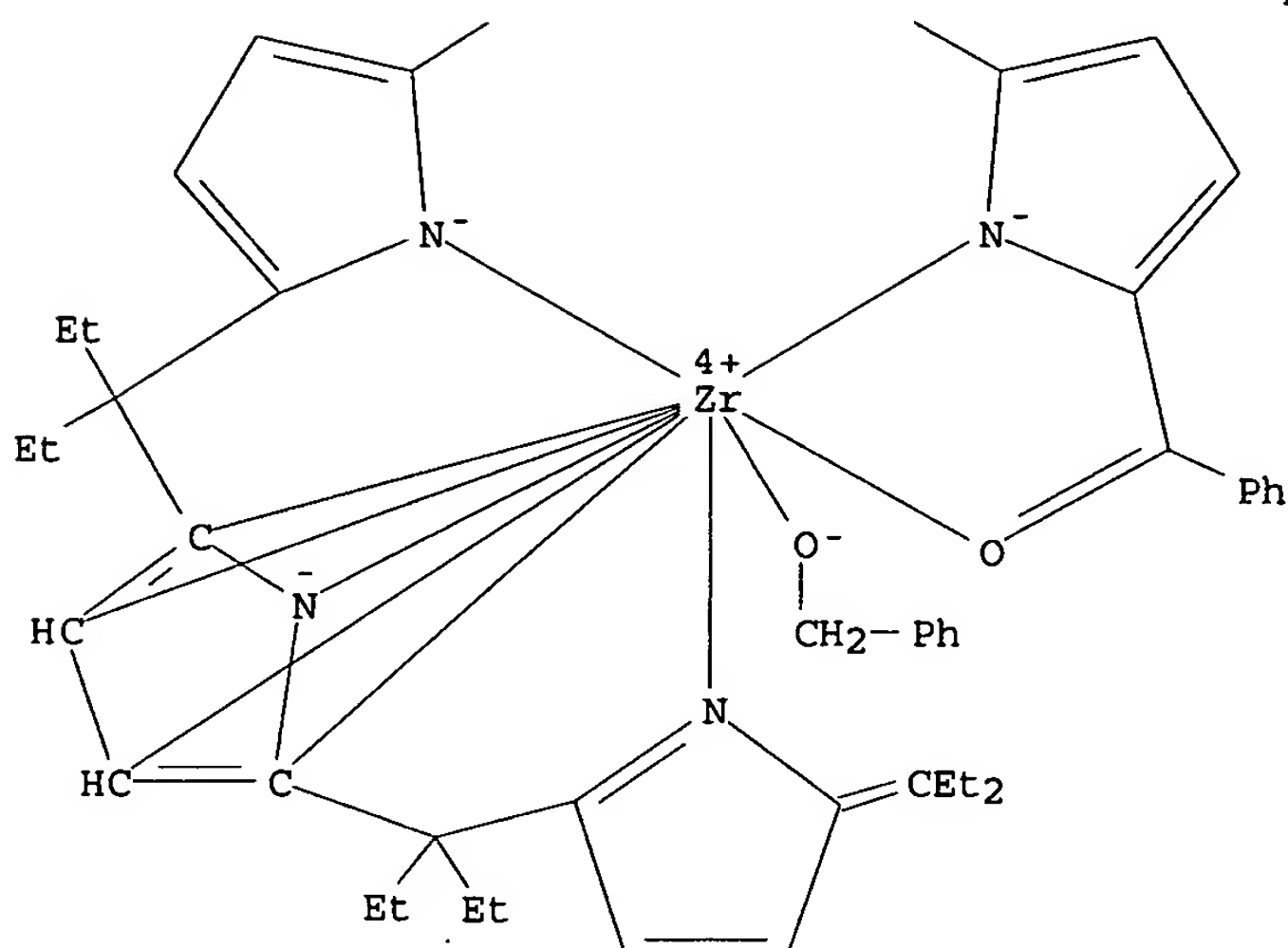


RN 191087-99-7 HCAPLUS
CN Zirconium, (benzenemethanolato) [[(11,12,13,14η)-5,5,10,10,15,15-hexaethyl-19-(1-ethylpropylidene)-5,10,15,19,22,23-hexahydro-21H-bilin-1-yl-κN21,κN22,κN23,κN24]phenylmethano
nato(3-)-κO]-, stereoisomer (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



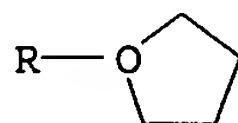
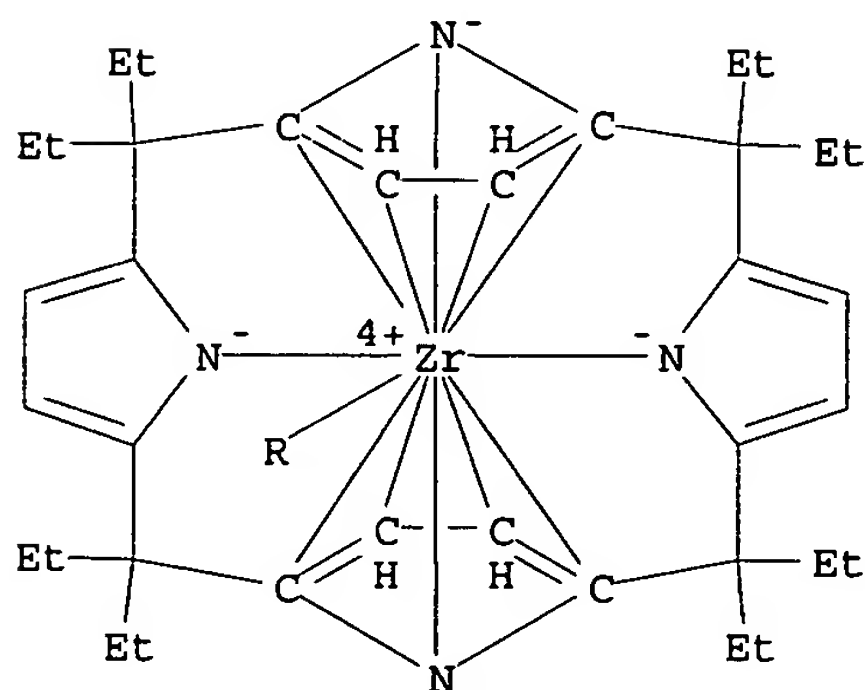
IT 148420-64-8

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(metal-assisted cleavage of porphyrinogen skeleton and reaction of meso-octaethylporphyrinogen complexes with benzaldehyde)

RN 148420-64-8 HCAPLUS

CN Zirconium, [(1,2,3,4,11,12,13,14 η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)- κ N21, κ N22, κ N23, κ N24] (tetrahydrofuran)-, stereoisomer (9CI) (CA INDEX NAME)



CC 67-3 (Catalysis, Reaction Kinetics, and Inorganic Reaction

Mechanisms)

Section cross-reference(s): 25, 78

IT 191087-97-5P 191087-99-7P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent) (crystal structure; metal-assisted cleavage of porphyrinogen skeleton and reaction of meso-octaethylporphyrinogen complexes with benzaldehyde)

IT 100-52-7, Benzaldehyde, reactions 148420-64-8 166528-40-1

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent) (metal-assisted cleavage of porphyrinogen skeleton and reaction of meso-octaethylporphyrinogen complexes with benzaldehyde)

L60 ANSWER 9 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

1997:76991 Document No. 126:118034 Bifunctional Carriers of Alkali-Metal Enolates: The Use of Zirconium meso-octaethylporphyrinogen in Aldol Condensation Reactions. Solari, Giovanna; Solari, Euro; Floriani, Carlo; Chiesi-Villa, Angiola; Rizzoli, Corrado (Institut de Chimie Minerale et Analytique, Universite de Lausanne, Lausanne, CH-1015, Switz.). Organometallics, 16(4), 508-510 (English) 1997. CODEN: ORGND7. ISSN: 0276-7333. OTHER SOURCES: CASREACT 126:118034. Publisher: American Chemical Society.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

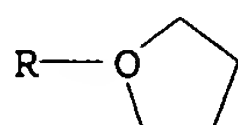
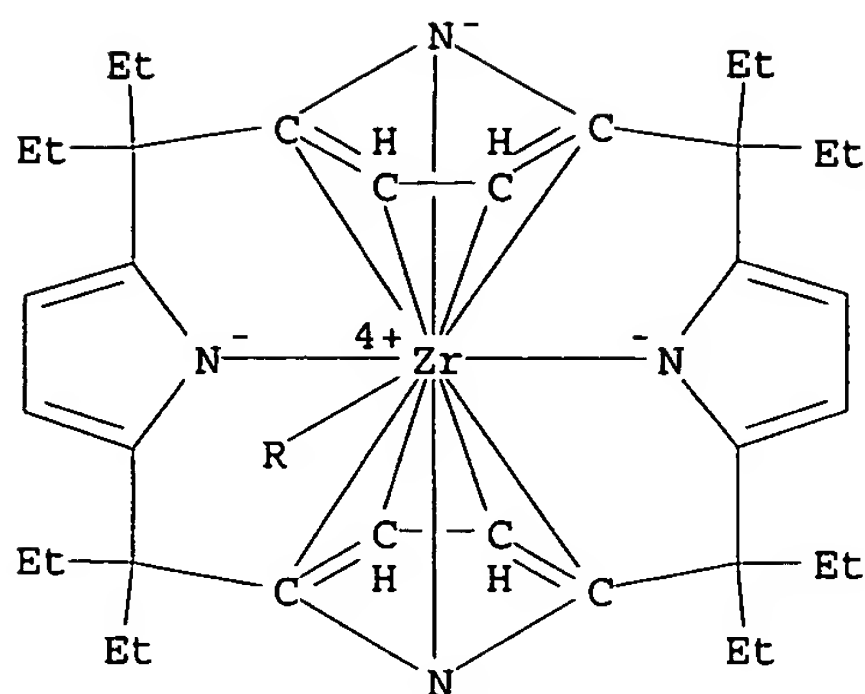
AB The (meso-octaethylporphyrinogenato)zirconium(IV) species [(Et₈N₄)Zr(THF)] (1) binds the acetophenone K enolate [PhCOCH₂K] (2) in its ion-pair form, [η⁵:η¹:η¹:η¹-Et₈N₄)Zr{PhC(CH₂)O}K(THF)₃] (3), and thus drives the aldol condensation reaction with acetophenone. The resulting aldolate, which occurs in a metallacyclic form due to the solvation of K by a Ph ring, remains η¹ (O)-bonded to Zr, [(η⁵:η¹:η¹:η¹-Et₈N₄)Zr{PhC(CH₂)OC(O)C(Me)Ph}K]_n (4; shown as I).

IT 148420-64-8

RL: RCT (Reactant); RACT (Reactant or reagent) (bifunctional carriers of alkali-metal enolates and use of zirconium meso-ethylporphyrinogen in aldol condensation reactions)

RN 148420-64-8 HCAPLUS

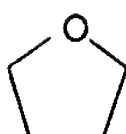
CN Zirconium, [(1,2,3,4,11,12,13,14η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-κN21,κN22,κN23,κN24] (tetrahydrofuran)-, stereoisomer (9CI) (CA INDEX NAME)



IT 185956-24-5P 185956-27-8P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP
 (Preparation)
 (preparation and crystal structure of)
 RN 185956-24-5 HCAPLUS
 CN Potassium(1+), tris(tetrahydrofuran)-, α -
 methylenebenzenemethanolato [(1,2,3,4 η)-5,5,10,10,15,15,20,20-
 octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-
 κ N21, κ N22, κ N23, κ N24]zirconate(1-), compd.
 with tetrahydrofuran (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 109-99-9
 CMF C4 H8 O



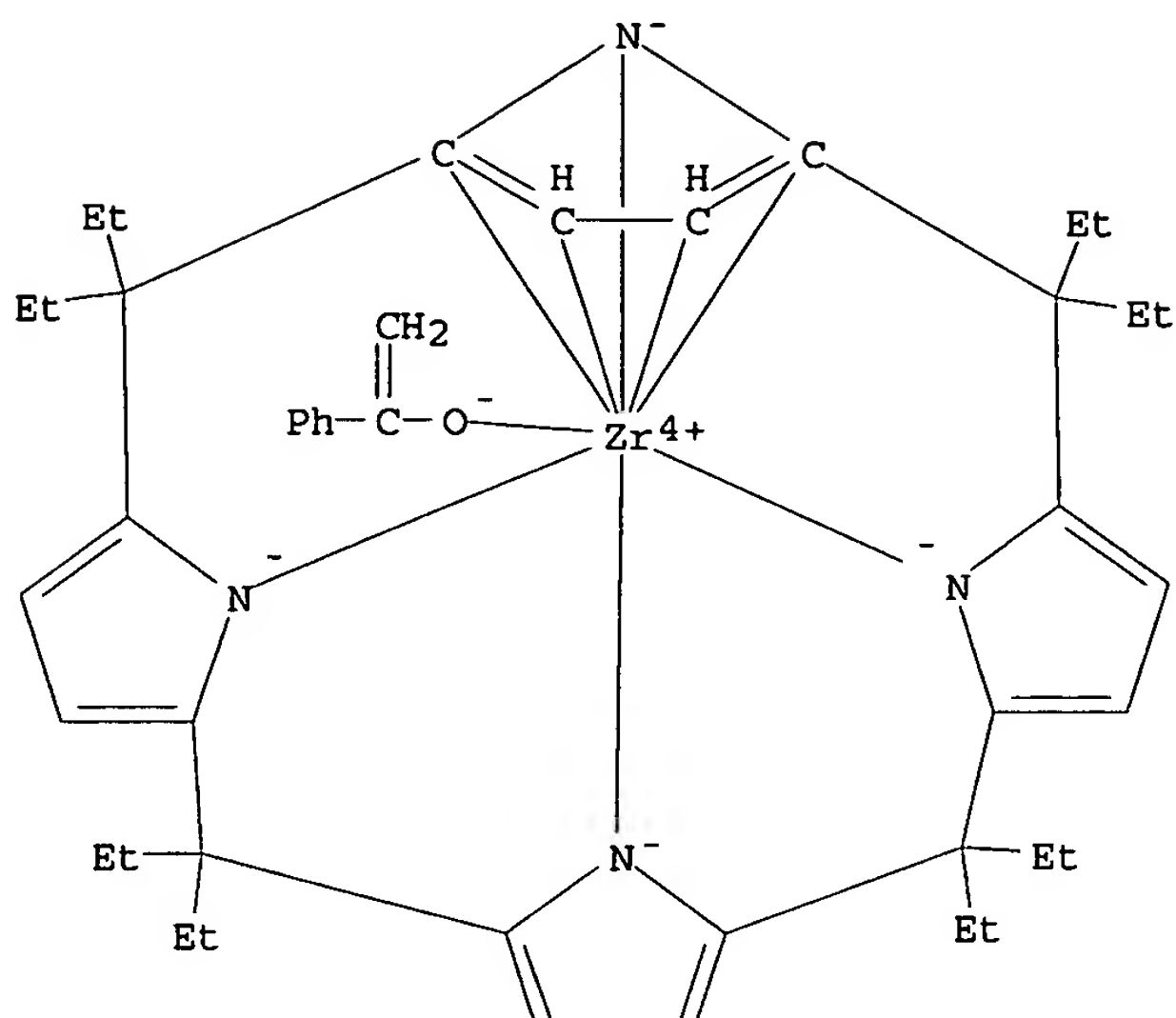
CM 2

CRN 185956-19-8
 CMF C44 H55 N4 O Zr . C12 H24 K O3

CM 3

CRN 185956-18-7
 CMF C44 H55 N4 O Zr
 CCI CCS

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PAGE 2-A

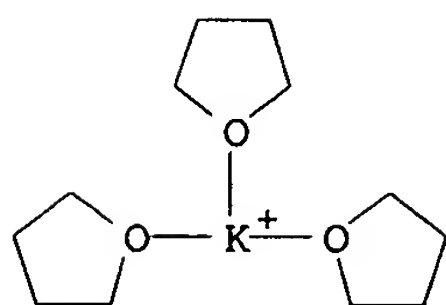


CM 4

CRN 73836-19-8

CMF C12 H24 K O3

CCI CCS



RN 185956-27-8 HCAPLUS
 CN Zirconate(1-), [3-(hydroxyκO)-1,3-diphenyl-1-butanonato] [(1,2,3,4-η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-κN21,κN22,κN23,κN24]-, potassium, compd. with methylbenzene (1:1) (9CI) (CA INDEX NAME)

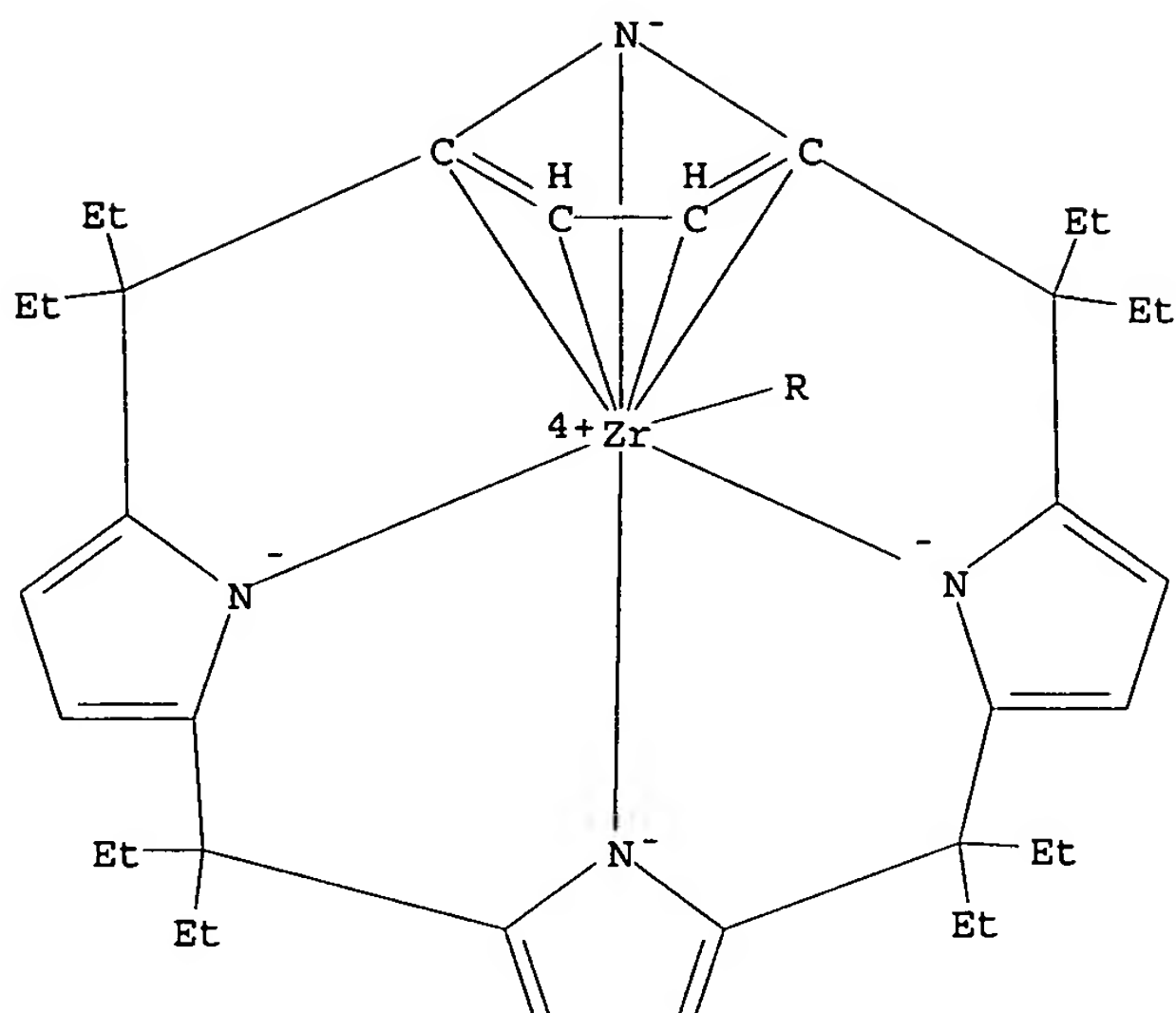
CM 1

CRN 185956-21-2

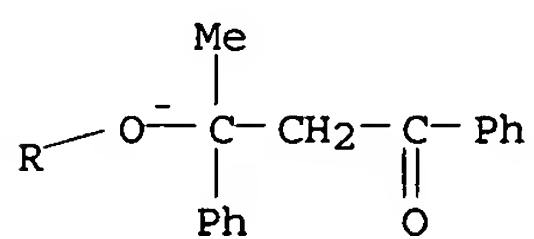
CMF C52 H63 N4 O2 Zr . K

CCI CCS

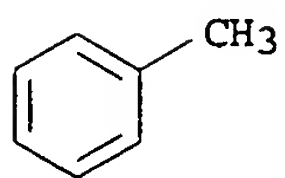
PAGE 1-A



PAGE 2-A



CM 2

CRN 108-88-3
CMF C7 H8

IT 185956-21-2P

Les Henderson

Page 26

571-272-2538

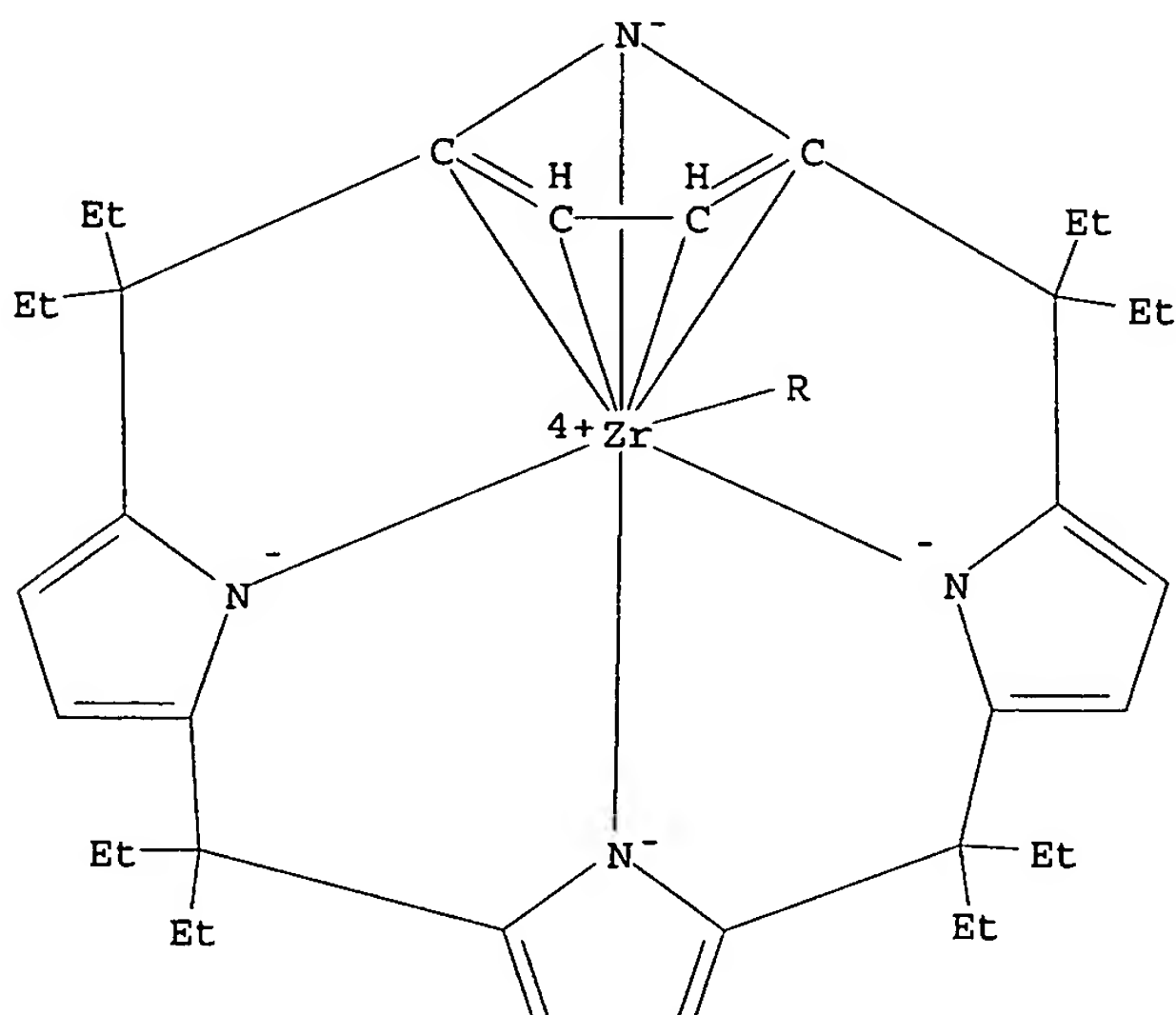
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and mol. structure of)

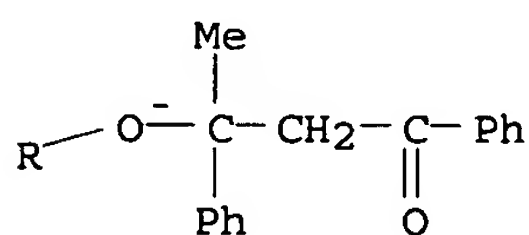
RN 185956-21-2 HCAPLUS

CN Zirconate(1-), [3-(hydroxyκO)-1,3-diphenyl-1-butanonato] [(1,2,3,4-η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-κN21,κN22,κN23,κN24]-, potassium (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



● K⁺

IT 185956-19-8P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (preparation, mol. structure and reaction with acetophenone)

RN 185956-19-8 HCAPLUS

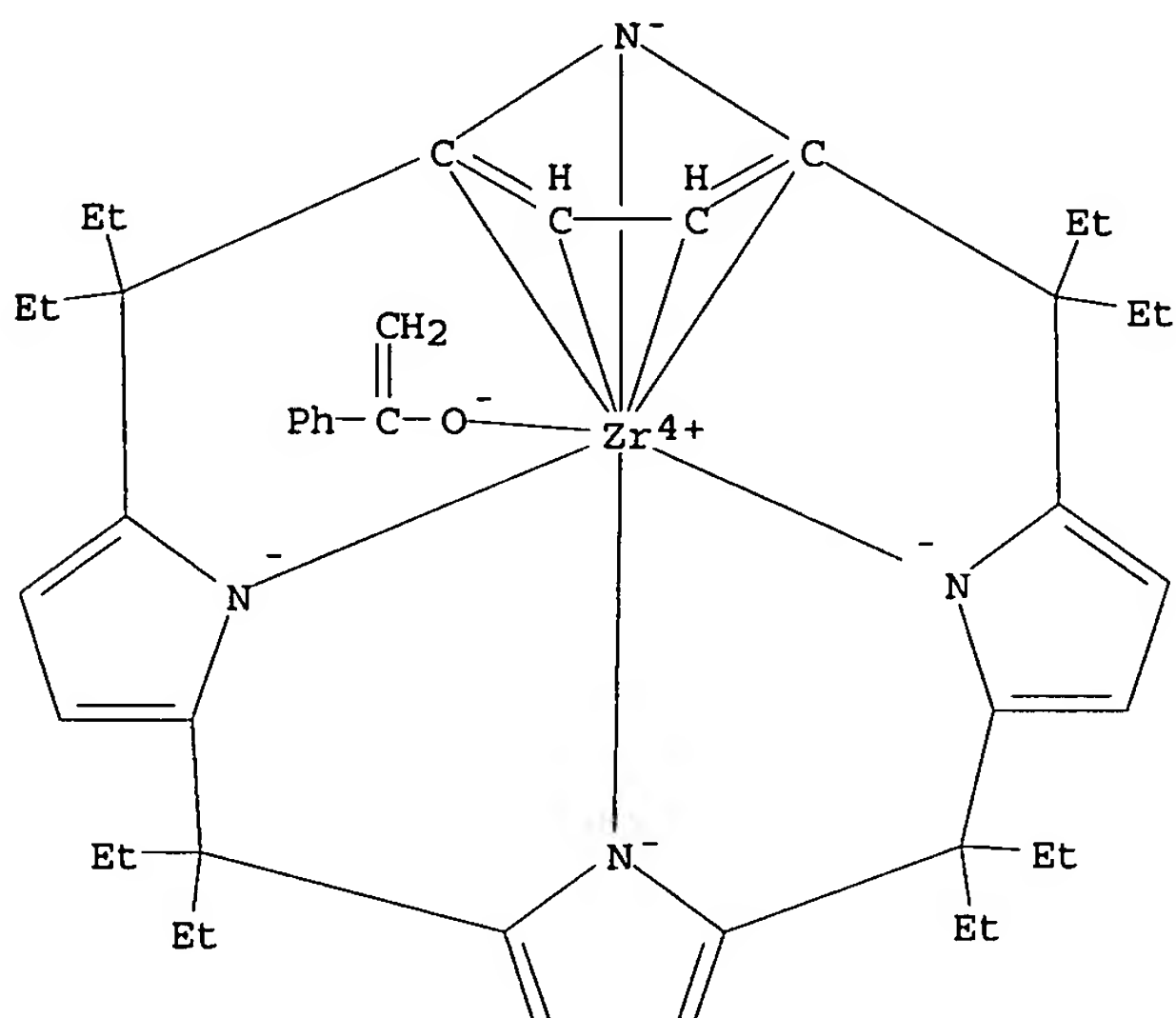
CN Potassium(1+), tris(tetrahydrofuran)-, α-

methylenebenzenemethanolato) [(1,2,3,4η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-κN21,κN22,κN23,κN24]zirconate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 185956-18-7
CMF C44 H55 N4 O Zr
CCI CCS

PAGE 1-A

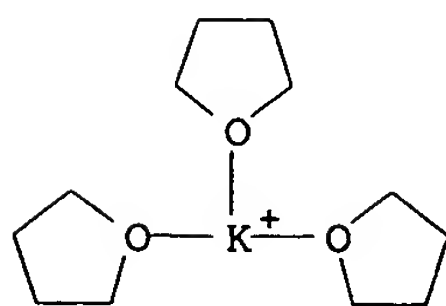


PAGE 2-A



CM 2

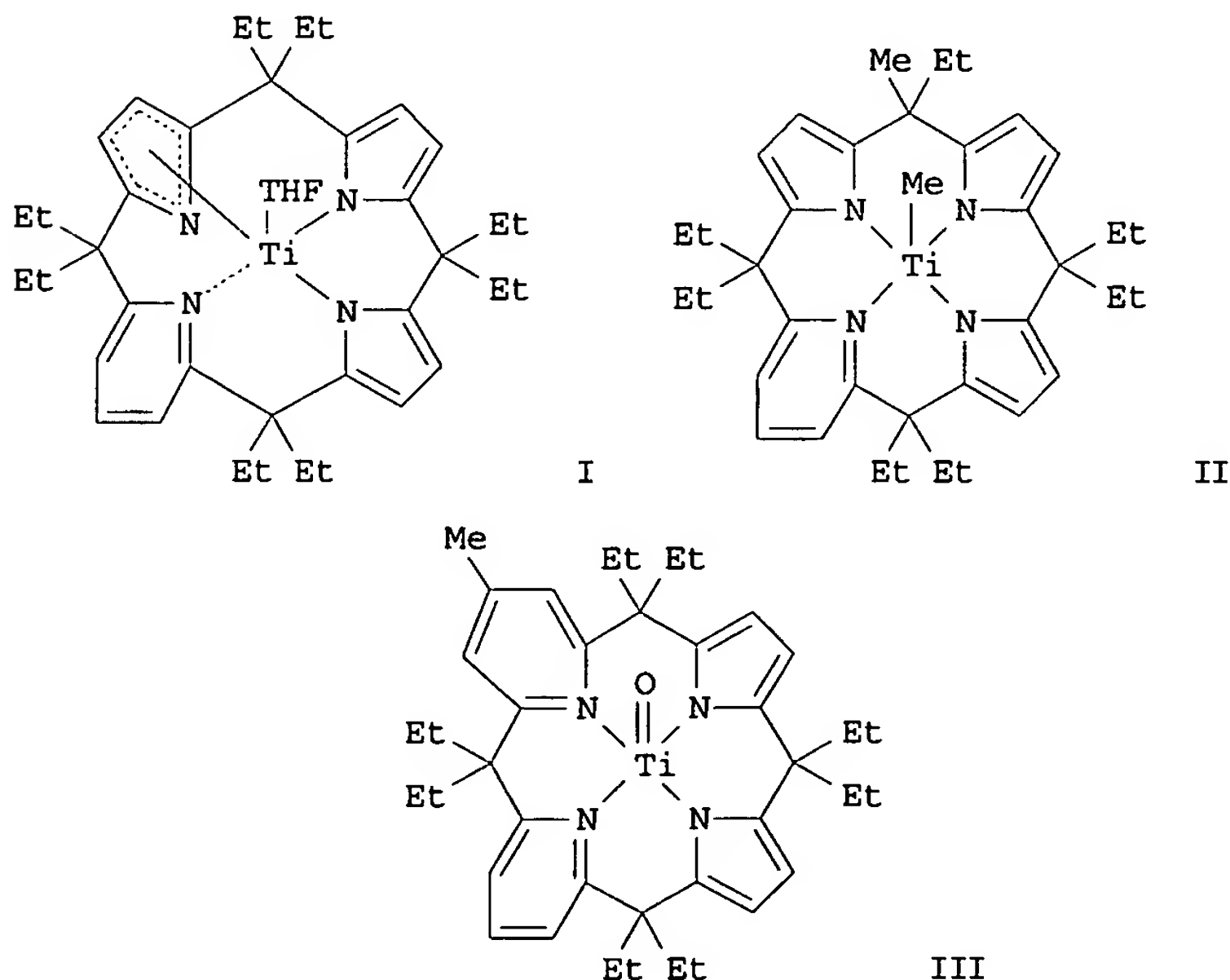
CRN 73836-19-8
CMF C12 H24 K O3
CCI CCS



- CC 29-10 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22, 75
- IT 98-86-2, Acetophenone, reactions148420-64-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(bifunctional carriers of alkali-metal enolates and use of zirconium meso-ethylporphyrinogen in aldol condensation reactions)
- IT 185956-24-5P 185956-27-8P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)
- IT 185956-21-2P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and mol. structure of)
- IT 185956-19-8P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation, mol. structure and reaction with acetophenone)

L60 ANSWER 10 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1996:721739 Document No. 126:74987 Binding of a meso-Octaethyl Tris(pyrrole)-Mono(pyridine) Ligand to Titanium(III) and Titanium(IV): A Monomeric Titanium(IV) Oxo Bis(pyridine)-Bis(pyrrole) Complex Derived from the C-O Bond Cleavage of Carbon Monoxide. Crescenzi, Raffaella; Solari, Euro; Floriani, Carlo; Chiesi-Villa, Angiola; Rizzoli, Corrado (Institut de Chimie Minerale et Analytique, Universite de Lausanne, Lausanne, CH-1015, Switz.). Organometallics, 15(26), 5456-5458 (English) 1996. CODEN: ORGND7. ISSN: 0276-7333. Publisher: American Chemical Society.

GI



AB The metalation of the meso-octaethyltrispyrrolemonopyridine with $\text{TiCl}_3(\text{THF})_3$ gave the corresponding Ti(III) complex I, where the ligand displays a $\eta^5\text{-}\eta^1\text{-}\eta^1$ bonding mode. The $\eta^5\text{-}\eta^3$ bonding mode is responsible for the homologation of a pyrrole to a pyridine ring in the reaction of II with CO. This reaction occurred with the complete cleavage of the C-O bond and formation of the Ti:O unit (Ti:O, 1.628 Å), while the [Me-C] fragment homologated a pyrrole to a 4-methylpyridine ring within the meso-octaethyl tris(pyrrole)-mono(pyridine) macrocycle giving III. The crystal and mol. structures of I and III were determined by x-ray crystallog.

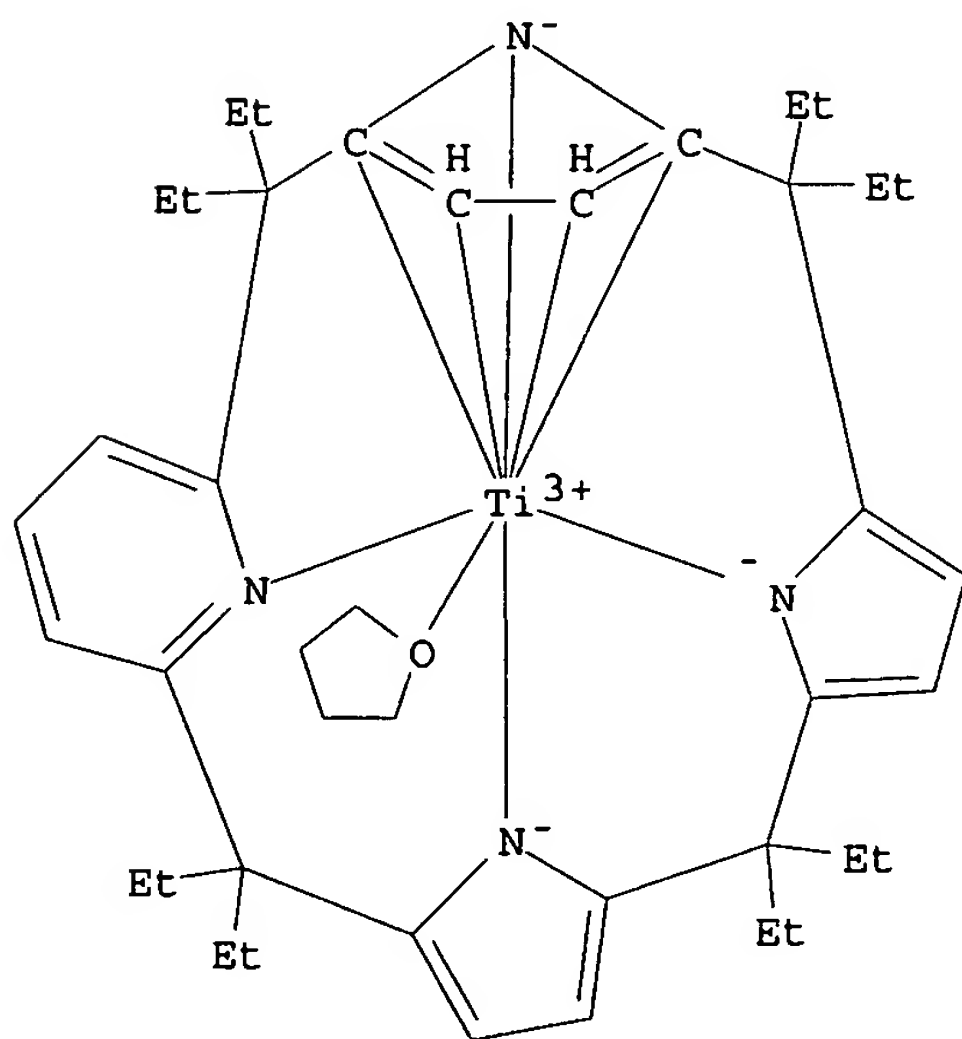
IT 185116-85-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and crystal structure of)

RN 185116-85-2 HCAPLUS

CN Titanium, [(3,4,5,6- η)-2,2,7,7,12,12,17,17-octaethyl-22,23,24,25-tetraazapentacyclo[16.3.1.13,6.18,11.113,16]pentacosa-1(22),3,5,8,10,13,15,18,20-nonaenato(3-)- $\kappa\text{N}22,\kappa\text{N}23,\kappa\text{N}24,\kappa\text{N}25$] (tetrahydrofuran)-, stereoisomer (9CI) (CA INDEX NAME)



CC 29-10 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75, 78

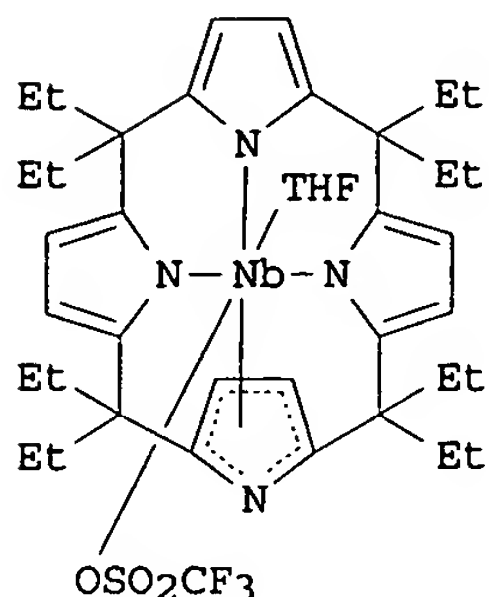
IT 185116-85-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

L60 ANSWER 11 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1995:993272 Document No. 124:146355 Niobium-Carbon Functionalities
Supported by meso-Octaethylporphyrinogen and Derived Macrocycles.
Isoz, Sylviane; Floriani, Carlo; Schenk, Kurt; Chiesi-Villa,

Angiola; Rizzoli, Corrado (Institut de Chimie Minerale et Analytique, Universite de Lausanne, Lausanne, CH-1015, Switz.). Organometallics, 15(1), 337-44 (English) 1996. CODEN: ORGND7. ISSN: 0276-7333. Publisher: American Chemical Society.

GI



I

AB This report concerns the organometallic chemical of Nb based on a macrocyclic ligand. To this purpose, the (meso-octaalkylporphyrinogen)niobium(V) complex $[(\eta^5:\eta^1:\eta^5:\eta^1\text{-Et}_8\text{N}_4)\text{NbCl}]$, 2, was used as an appropriate starting material. The ionization of the Nb-Cl bond using AgSO_3CF_3 gave a bifunctional acid-base system with an increased acidity of the metal center in $[(\eta^5:\eta^1:\eta^1:\eta^1\text{-Et}_8\text{N}_4)\text{Nb}(\text{THF})(\text{O}_3\text{SCF}_3)]$, 3 (shown as structure I). The alkylation of 2 with LiMe gave a quite stable Nb(V) organometallic derivative $[(\eta^5:\eta^1:\eta^1:\eta^1\text{-Et}_8\text{N}_4)\text{NbMe}]$, 4, which undergoes a migratory insertion reaction with ButNC leading to an η^2 -iminoacyl derivative $[(\eta^5:\eta^1:\eta^1:\eta^1\text{-Et}_8\text{N}_4)\text{Nb}(\text{ButNC})\eta^2\text{-C}(\text{Me})\text{:NBut}]$, 6 ($\nu_{\text{C:N}}$, 2217 and 1736 cm^{-1}). Two steps of the reaction were identified. An attempt to functionalize the Nb:O in $[(\eta^5:\eta^1:\eta^1:\eta^1\text{-Et}_8)(\text{C}_4\text{H}_2\text{N})_3(\text{p-MeC}_5\text{H}_2\text{N})\text{Nb:O}]$, 7, using LiMe led, on the contrary, to $[(\eta^1:\eta^1:\eta^1:\eta^1\text{-Et}_7)(\text{CHMe})(\text{C}_4\text{H}_2\text{N})_3(\text{p-MeC}_5\text{H}_2\text{N})\text{NbOLi}(\text{THF})_3]$, derived from the metalation of one of the meso-Et groups in 9. While x-ray anal. provided information on the solid state structures of 3, 4, 6, and 9, NMR studies allowed the authors to establish a relation between the bonding mode of the porphyrinogen in the solid state and in solution

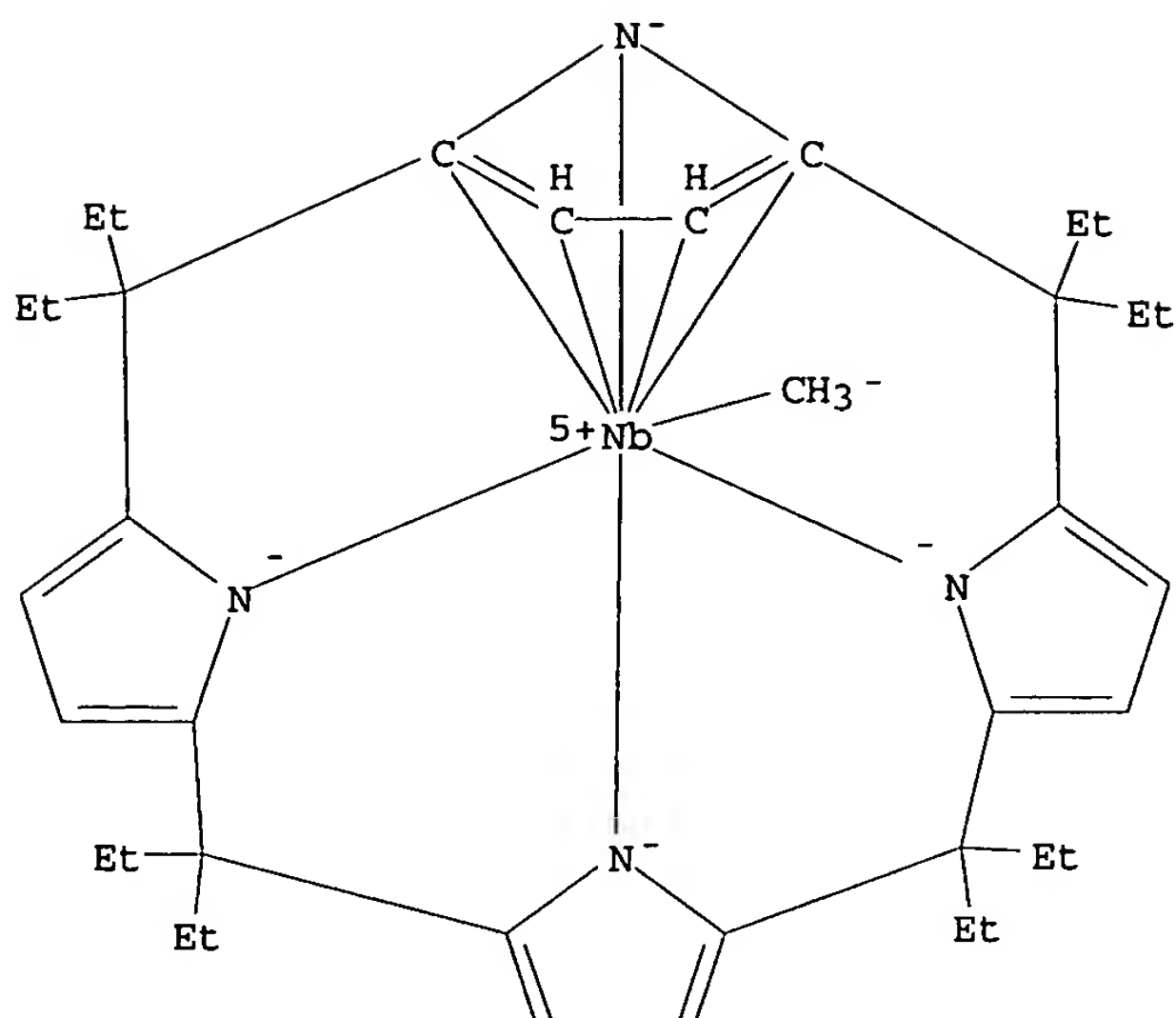
IT 168331-69-9P 173065-62-8P 173065-63-9P
173065-66-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP
(Preparation)
(preparation and crystal structure of)

RN 168331-69-9 HCAPLUS

CN Niobium, methyl[(1,2,3,4- η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24]-, stereoisomer (9CI) (CA INDEX NAME)

PAGE 1-A



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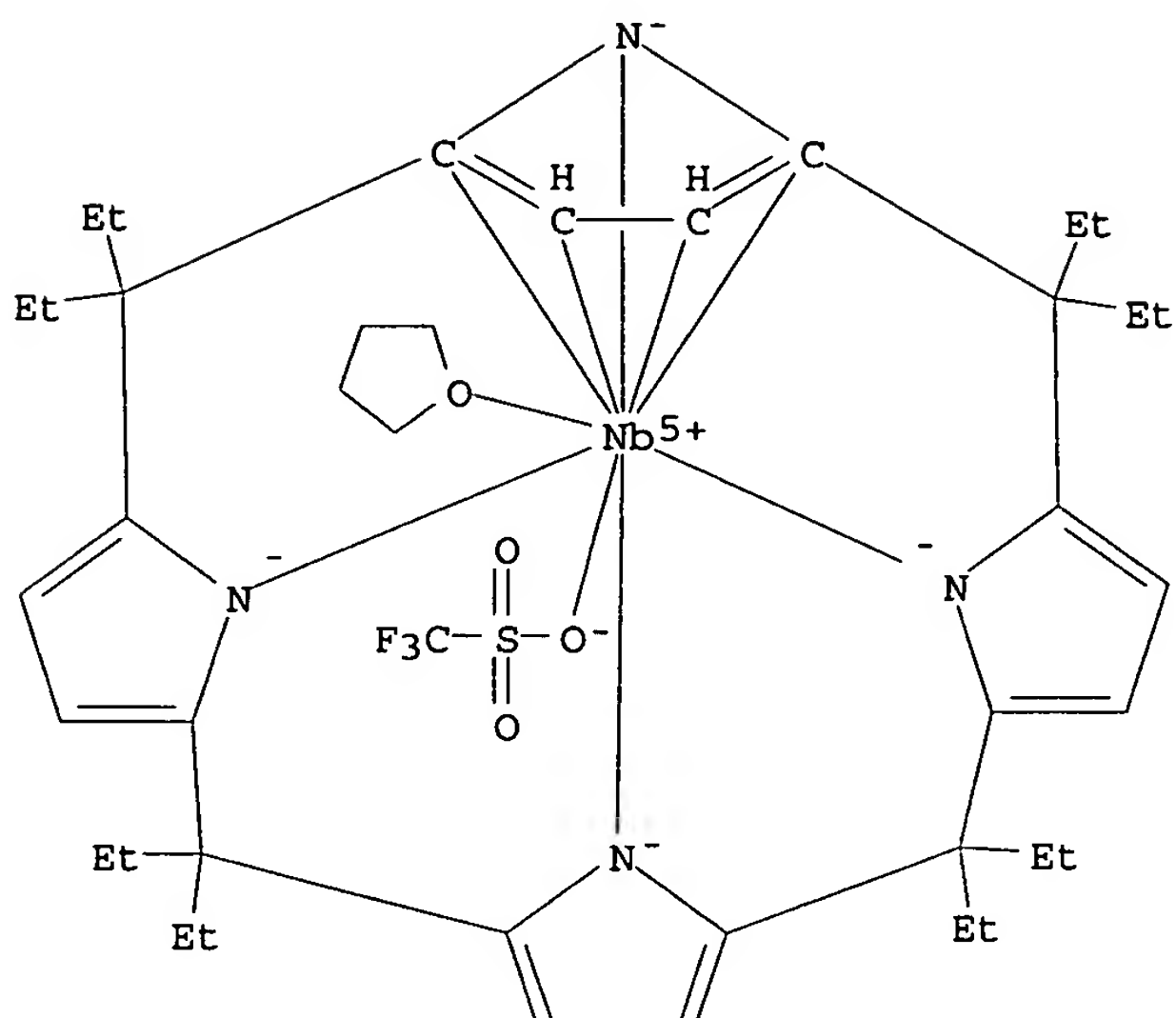


RN 173065-62-8 HCAPLUS
 CN Niobium, [(1,2,3,4,11,12,13,14η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24] (tetrahydrofuran) (trifluoromethanesulfonato-O)-, stereoisomer, compd. with tetrahydrofuran (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 173065-61-7
 CMF C41 H56 F3 N4 Nb O4 S
 CCI CCS

PAGE 1-A



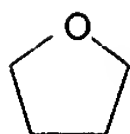
PAGE 2-A



CM 2

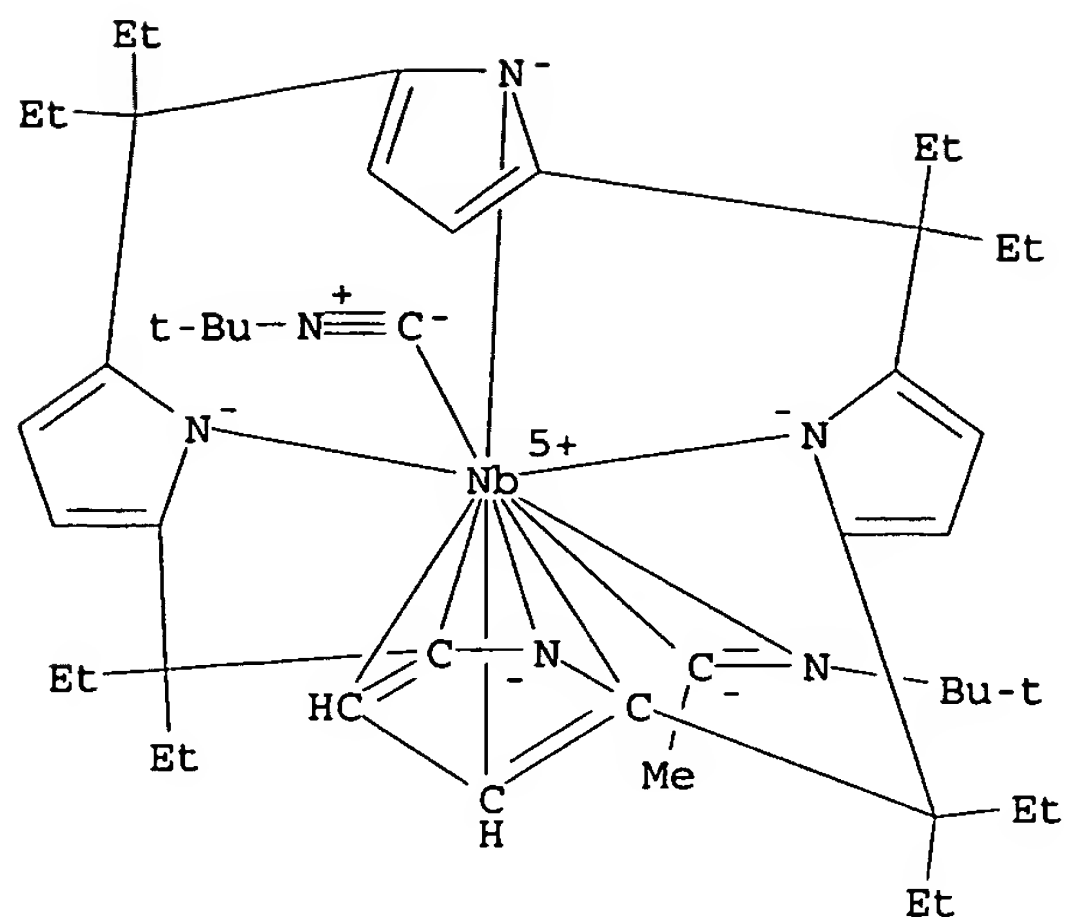
CRN 109-99-9

CMF C4 H8 O



RN 173065-63-9 HCAPLUS

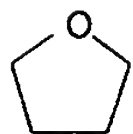
CN Niobium, [η2-1-[(1,1-dimethylethyl)imino]ethyl] (2-isocyano-2-methylpropane) [(1,2,3,4,11,12,13,14η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24]-, stereoisomer (9CI) (CA INDEX NAME)



RN 173065-66-2 HCAPLUS
 CN Lithium(1+), tris(tetrahydrofuran)-, [TP-6-623-(R*,S*)] -
 [2,2,7,7,12,12,17,17-octaethyl-20-methyl-22,23,24,25-
 tetraazapentacyclo[16.3.1.13,6.18,11.113,16]pentacosa-
 1(22),3,5,8,10,13,15,18,20-nonaenato(4-)]oxoniobate(1-), compd. with
 tetrahydrofuran (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 109-99-9
 CMF C4 H8 O

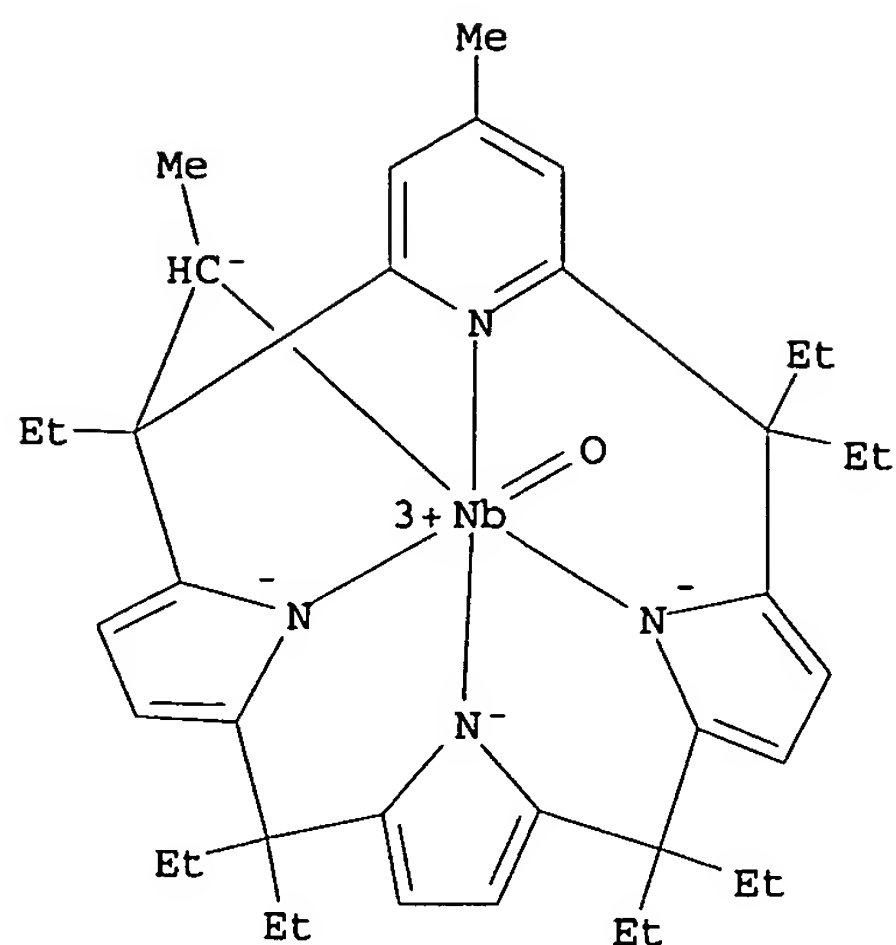


CM 2

CRN 173065-65-1
 CMF C38 H50 N4 Nb O . C12 H24 Li O3

CM 3

CRN 173065-64-0
 CMF C38 H50 N4 Nb O
 CCI CCS

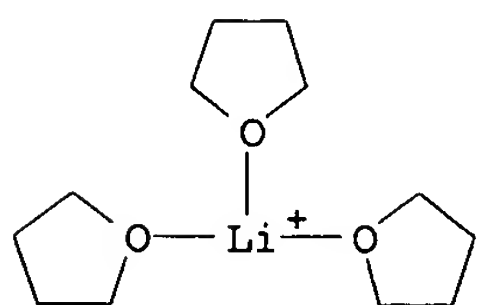


CM 4

CRN 61915-36-4

CMF C12 H24 Li O3

CCI CCS



IT 173065-61-7P 173065-65-1P

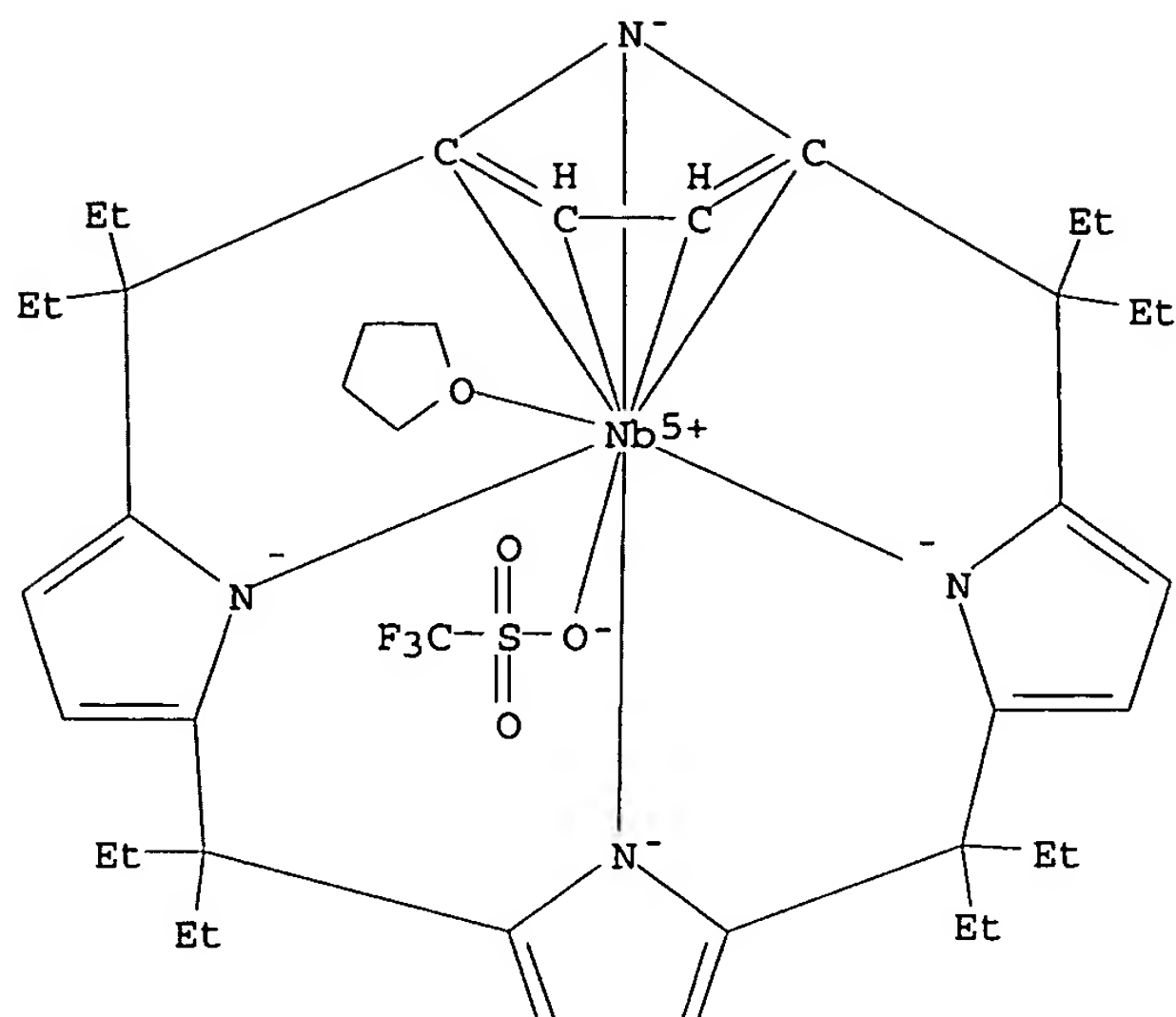
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and mol. structure of)

RN 173065-61-7 HCAPLUS

CN Niobium, [(1,2,3,4,11,12,13,14η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24](tetrahydrofuran)(trifluoromethanesulfonato-O)-, stereoisomer (9CI) (CA INDEX NAME)

PAGE 1-A



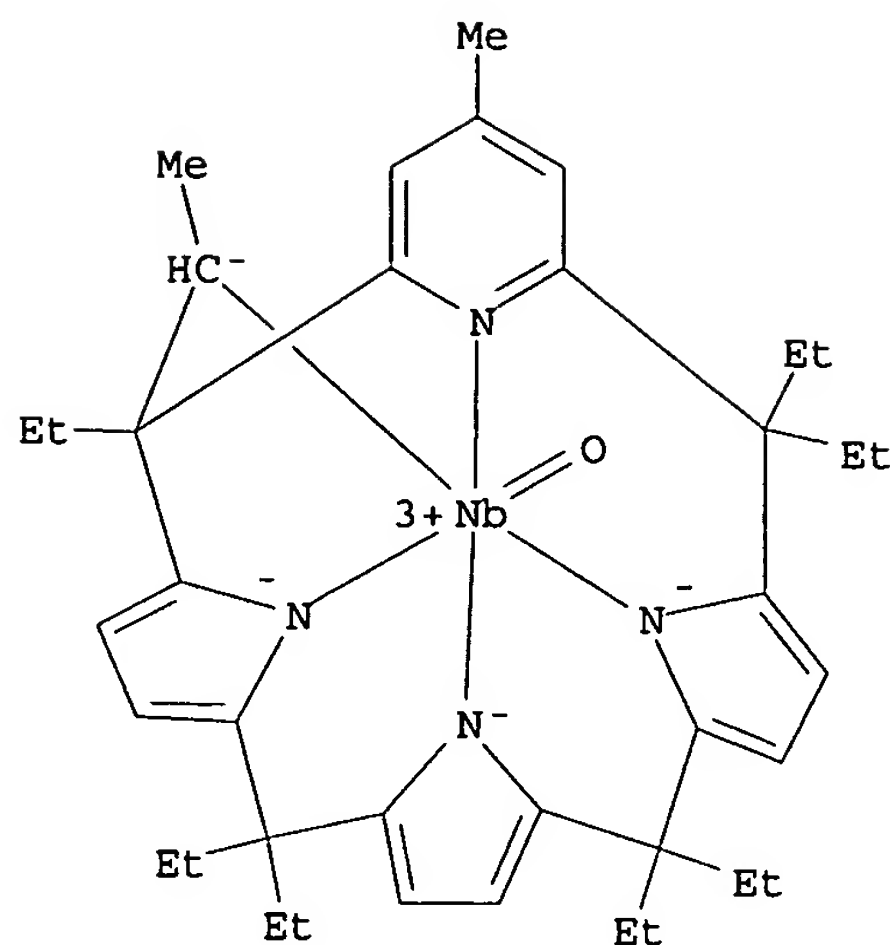
PAGE 2-A



RN 173065-65-1 HCAPLUS
 CN Lithium(1+), tris(tetrahydrofuran)-, [TP-6-623-(R*,S*)] -
 [2,2,7,7,12,12,17,17-octaethyl-20-methyl-22,23,24,25-
 tetraazapentacyclo[16.3.1.13,6.18,11.113,16]pentacosa-
 1(22),3,5,8,10,13,15,18,20-nonaenato(4-)]oxoniobate(1-) (9CI) (CA
 INDEX NAME)

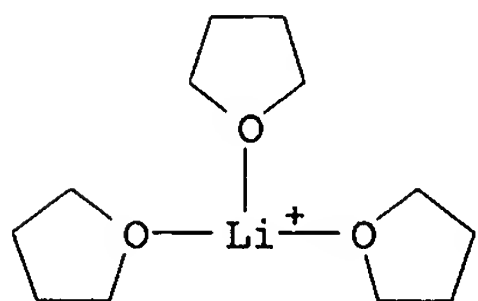
CM 1

CRN 173065-64-0
 CMF C38 H50 N4 Nb O
 CCI CCS



CM 2

CRN 61915-36-4
 CMF C12 H24 Li O3
 CCI CCS

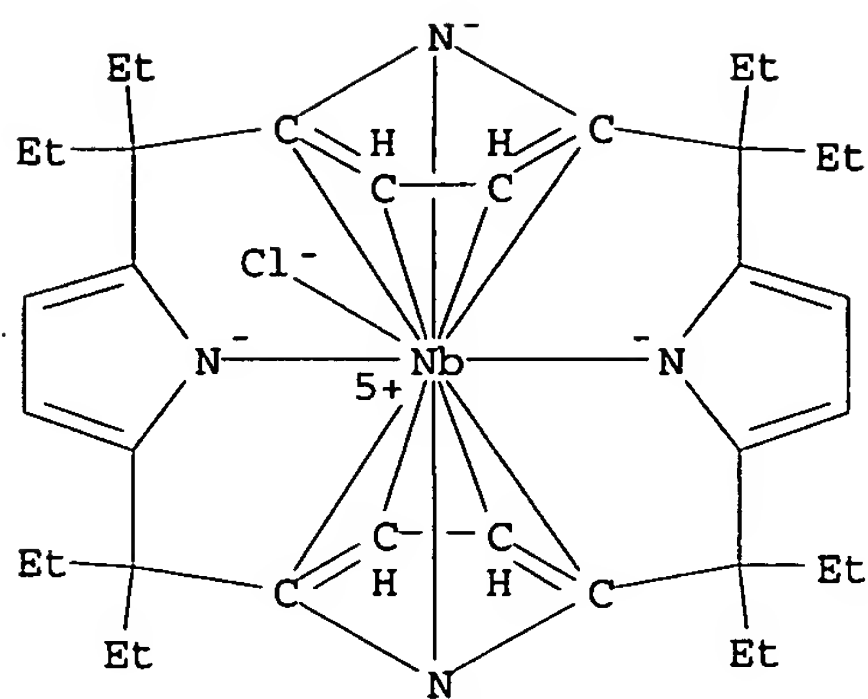


IT 173065-60-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
 RACT (Reactant or reagent)
 (preparation and reactions of)

RN 173065-60-6 HCAPLUS

CN Niobium, chloro[(1,2,3,4,11,12,13,14η)-5,5,10,10,15,15,20,20-
 octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-
 N21,N22,N23,N24]-, stereoisomer (9CI) (CA INDEX NAME)



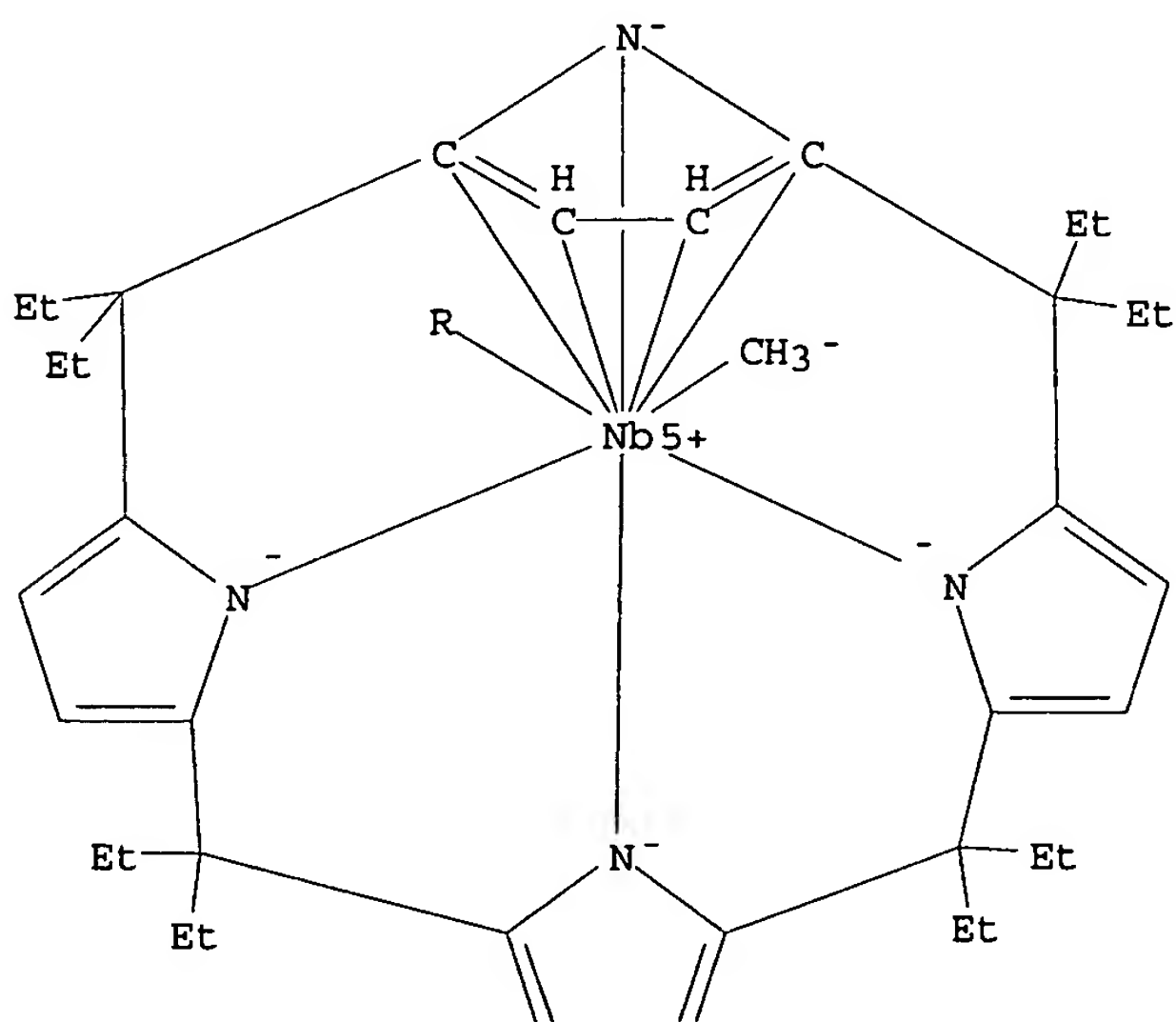
IT 173065-67-3P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

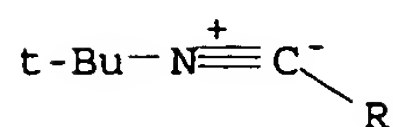
RN 173065-67-3 HCAPLUS

CN Niobium, (2-isocyano-2-methylpropane)methyl[(1,2,3,4η)-
5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-
porphinato(4-)-N21,N22,N23,N24]-, stereoisomer (9CI) (CA INDEX
NAME)

PAGE 1-A



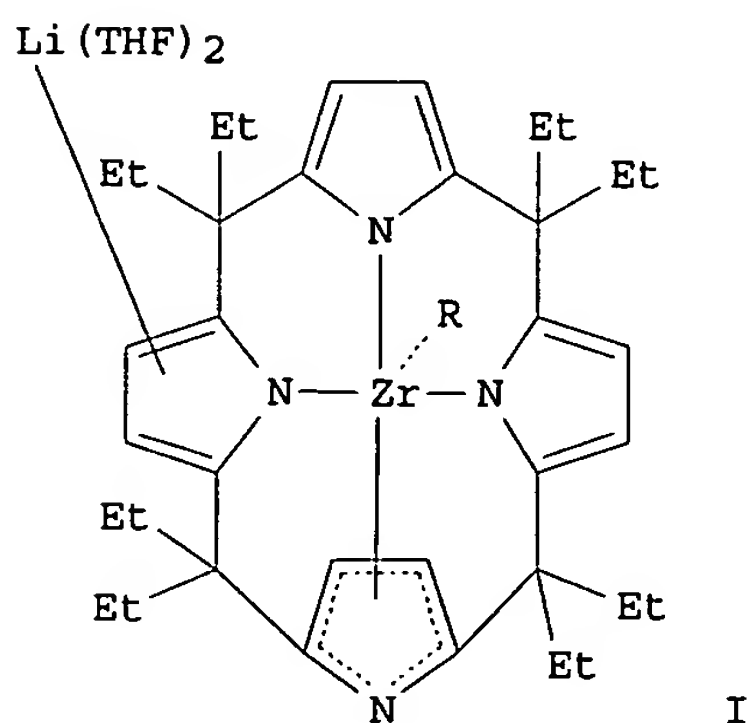
PAGE 2-A



- CC 29-10 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 26, 75
- IT 168331-69-9P 173065-62-8P 173065-63-9P
173065-66-2P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)
- IT 173065-61-7P 173065-65-1P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and mol. structure of)
- IT 173065-60-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
RACT (Reactant or reagent)
(preparation and reactions of)
- IT 173065-67-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

L60 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1995:806866 Document No. 124:8935 Bifunctional Carriers of
Organometallic Functionalities: Alkali-Metal-Zirconium-Hydrido,
-Alkyl, and -Allyl Derivatives of meso-Octaethylporphyrinogen and
Their Reaction with Isocyanides. Jacoby, Denis; Isoz, Sylviane;
Floriani, Carlo; Schenk, Kurt; Chiesi-Villa, Angiola; Rizzoli,
Corrado (Institut de Chimie Minerale et Analytique, Universite de
Lausanne, Lausanne, CH-1015, Switz.). Organometallics, 14(10),
4816-24 (English) 1995. CODEN: ORGND7. ISSN: 0276-7333. OTHER
SOURCES: CASREACT 124:8935. Publisher: American Chemical Society.

GI



AB The reaction of alkali-metal organometallics with the

meso-octaethylporphyrinogen-Zr complex [$\eta^5:\eta^1:\eta^5:\eta^1$ -Et₈N₄)Zr(THF)] (1), acting as a bifunctional carrier, gave bimetallic K-Zr and Li-Zr organometallics. Such compds. formed from the addition of the nucleophilic fragment to Zr, while the alkali-metal cation remained bonded to the electron-rich periphery of the porphyrinogen moiety. The addition of KH to 1 in a 1:1 molar ratio gave dinuclear [$\{\eta^5:\eta^1:\eta^5:\eta^1$ -Et₈N₄)Zr₂(μ -KH)₂] (2), while with a large excess of KH under controlled conditions the authors obtained a tetranuclear polyhydride species, [$\{\eta^5:\eta^1:\eta^1:\eta^1$ -Et₈N₄)Zr₄(KH)₈·(THF)₁₀] (3), having the [Zr₄K₄H₈] skeleton containing both μ^2 - and μ^3 -hydrides. In toluene-THF, the addition of LiR to 1 gave the monomeric dimetallic Li-Zr alkyls [$\{\eta^5:\eta^1:\eta^1:\eta^1$ -Et₈N₄)Zr-R)(Li(THF)₂)] (I; R = Me, 4; R = But, 5). The reaction of 1 with K allyl gave a structurally complex, bimetallic, polynuclear compound where the allyl fragment interacts in both η^1 and η^2 fashion, with Zr and K, resp., to give complex 6, [$\eta^5:\eta^1:\eta^1:\eta^1$ -Et₈N₄)Zr(μ - η^3 -C₃H₅)K]_n. Other K-Zr alkyl derivs. are accessible via: (i) the hydrozirconation of olefins using complex 2 (the reaction of 2 with ethylene gave [$\{\eta^5:\eta^1:\eta^1:\eta^1$ -Et₈N₄)Zr-CH₂CH₃)(μ -K)₂] (7)) and (ii) the exchange of the alkali-metal cation (the reaction of 4 with KH led to the corresponding KMe derivative supported by 1, [$\{\eta^5:\eta^1:\eta^1:\eta^1$ -Et₈N₄)Zr-Me)(K(THF))₂] (8)). The bimetallic K-Zr alkyl and hydrido derivs. are very reactive in insertion reactions. The reaction of 2 and 4 with ButNC led, resp., to the corresponding η^2 -iminoformyl [$\{\eta^5:\eta^1:\eta^1:\eta^1$ -Et₈N₄)Zr(η^2 -CH=NBu)₂(μ -K)₂] (9), and η^2 -iminoacetyl [$\{\eta^5:\eta^1:\eta^1:\eta^1$ -Et₈N₄)Zr(η^2 -C(Me)=NBu)(Li(THF))] (10)), complexes. As such, 9 and 10 should be considered as polar alkali-metal iminoformyl and iminoacetyl derivs. bonded to the bifunctional complex 1. The crystal and mol. structures of 3, 5, 6 and 10 were determined by x-ray crystallog.

IT 170801-86-2P 171029-89-3P 171029-90-6P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

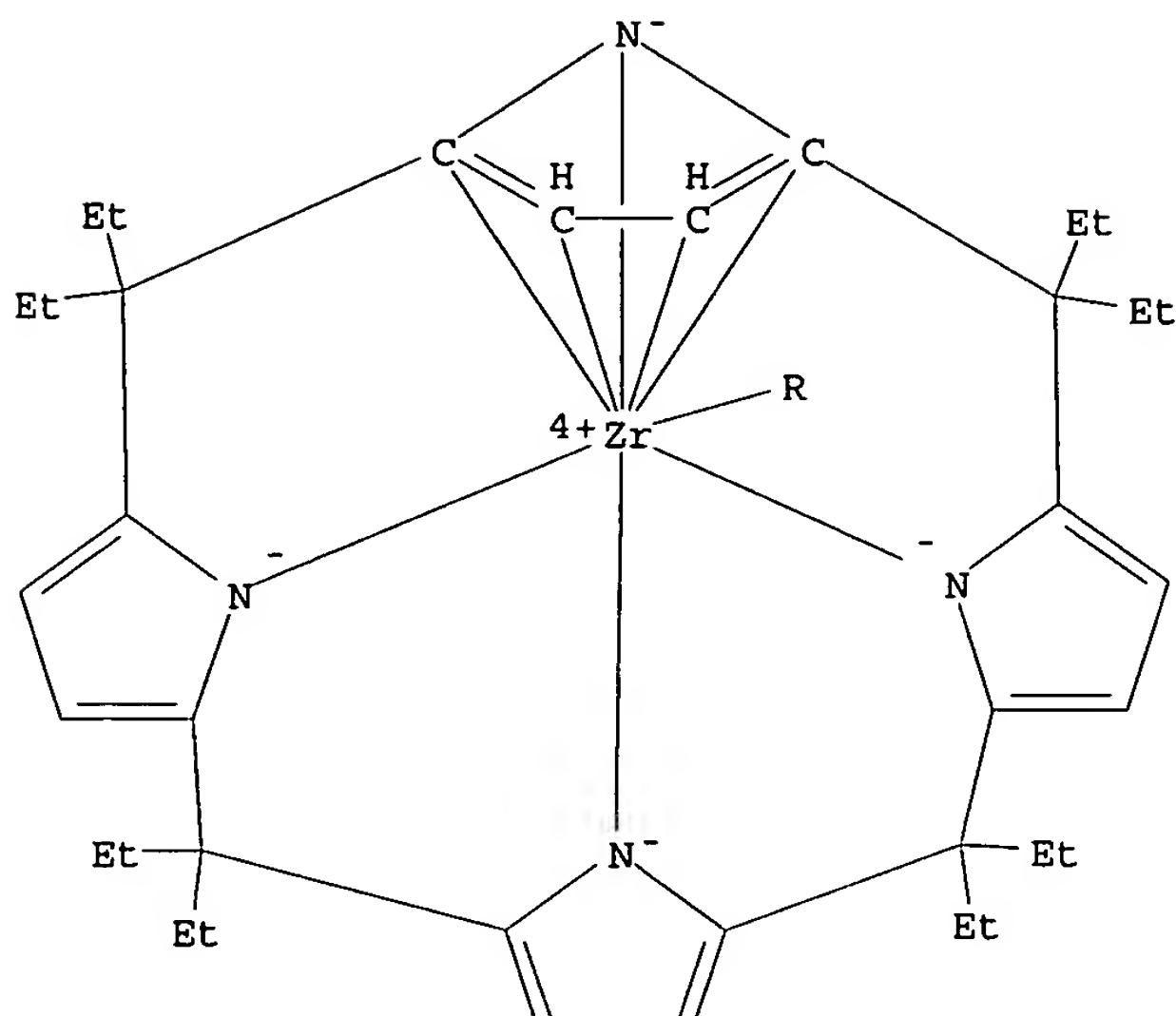
(preparation and crystal structure of)

RN 170801-86-2 HCAPLUS
 CN Lithium(1+), bis(tetrahydrofuran)-, stereoisomer of butyl[(1,2,3,4- η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N₂₁,N₂₂,N₂₃,N₂₄]zirconate(1-) (9CI) (CA INDEX NAME)

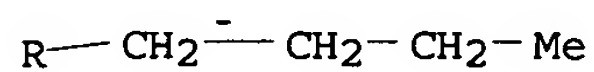
CM 1

CRN 170801-85-1
 CMF C40 H57 N4 Zr
 CCI CCS

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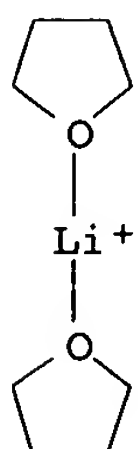


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CM 2

CRN 58702-68-4
 CMF C8 H16 Li O2
 CCI CCS



RN 171029-89-3 HCAPLUS
 CN Zirconate(1-), [(1,2,3,4-η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24]-2-

propenyl-, stereoisomer, potassium, compd. with tetrahydrofuran
(2:1) (9CI) (CA INDEX NAME)

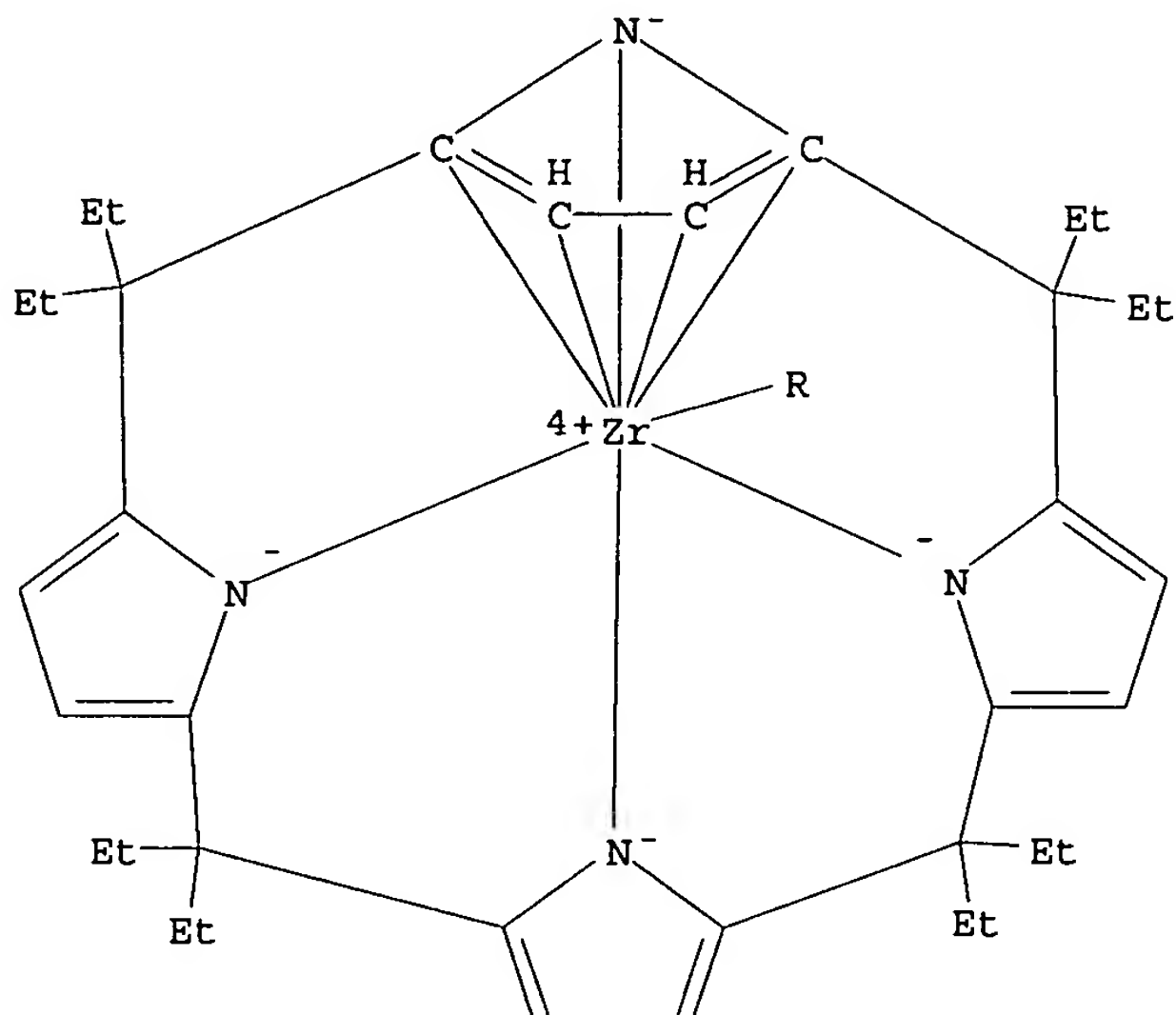
CM 1

CRN 170801-87-3

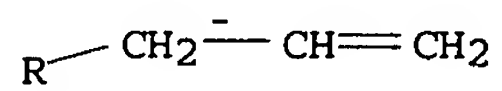
CMF C39 H53 N4 Zr . K

CCI CCS

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CM 2

CRN 109-99-9

CMF C4 H8 O

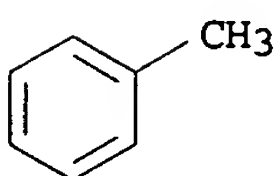


RN 171029-90-6 HCAPLUS
 CN Lithium(1+), (tetrahydrofuran)-, stereoisomer of
 [1-[(1,1-dimethylethyl)imino]ethyl-C,N] [(1,2,3,4η)-
 5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-
 porphinato(4-)-N21,N22,N23,N24]zirconate(1-), compd. with
 methylbenzene (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 108-88-3

CMF C7 H8



CM 2

CRN 170801-90-8

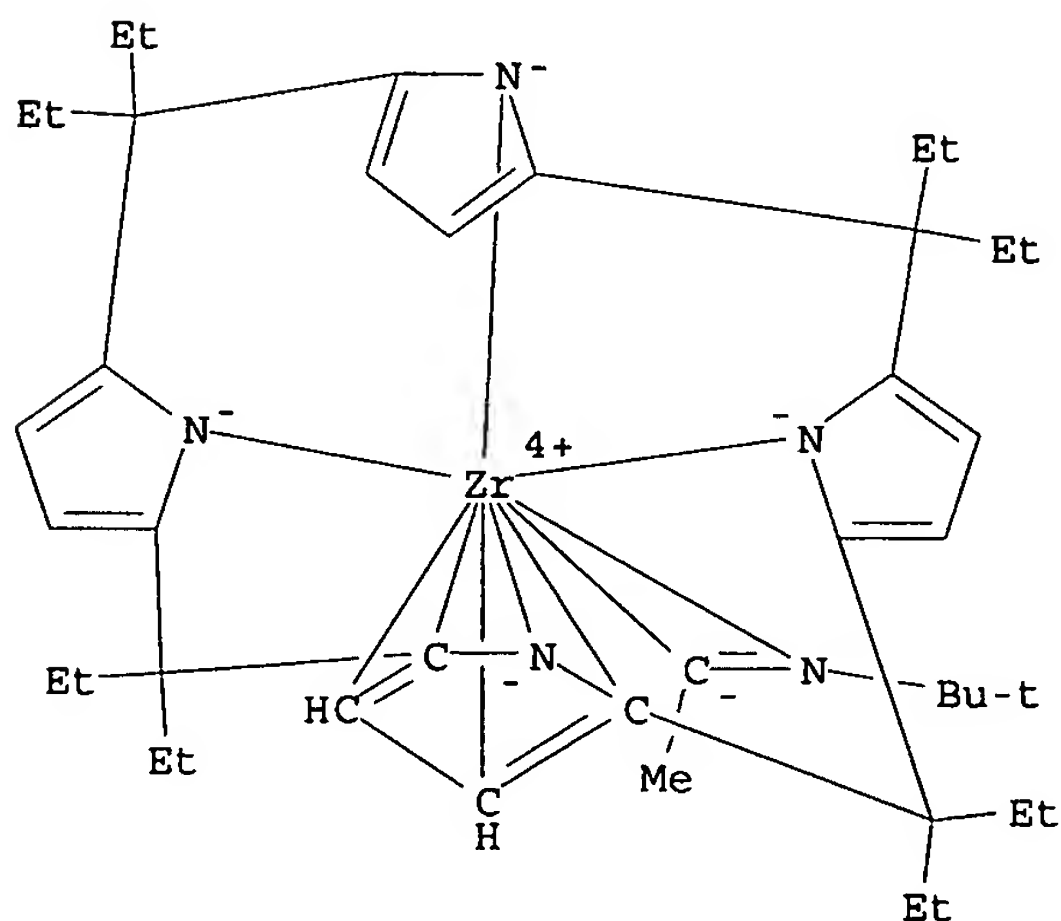
CMF C42 H60 N5 Zr . C4 H8 Li O

CM 3

CRN 170801-89-5

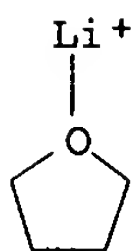
CMF C42 H60 N5 Zr

CCI CCS



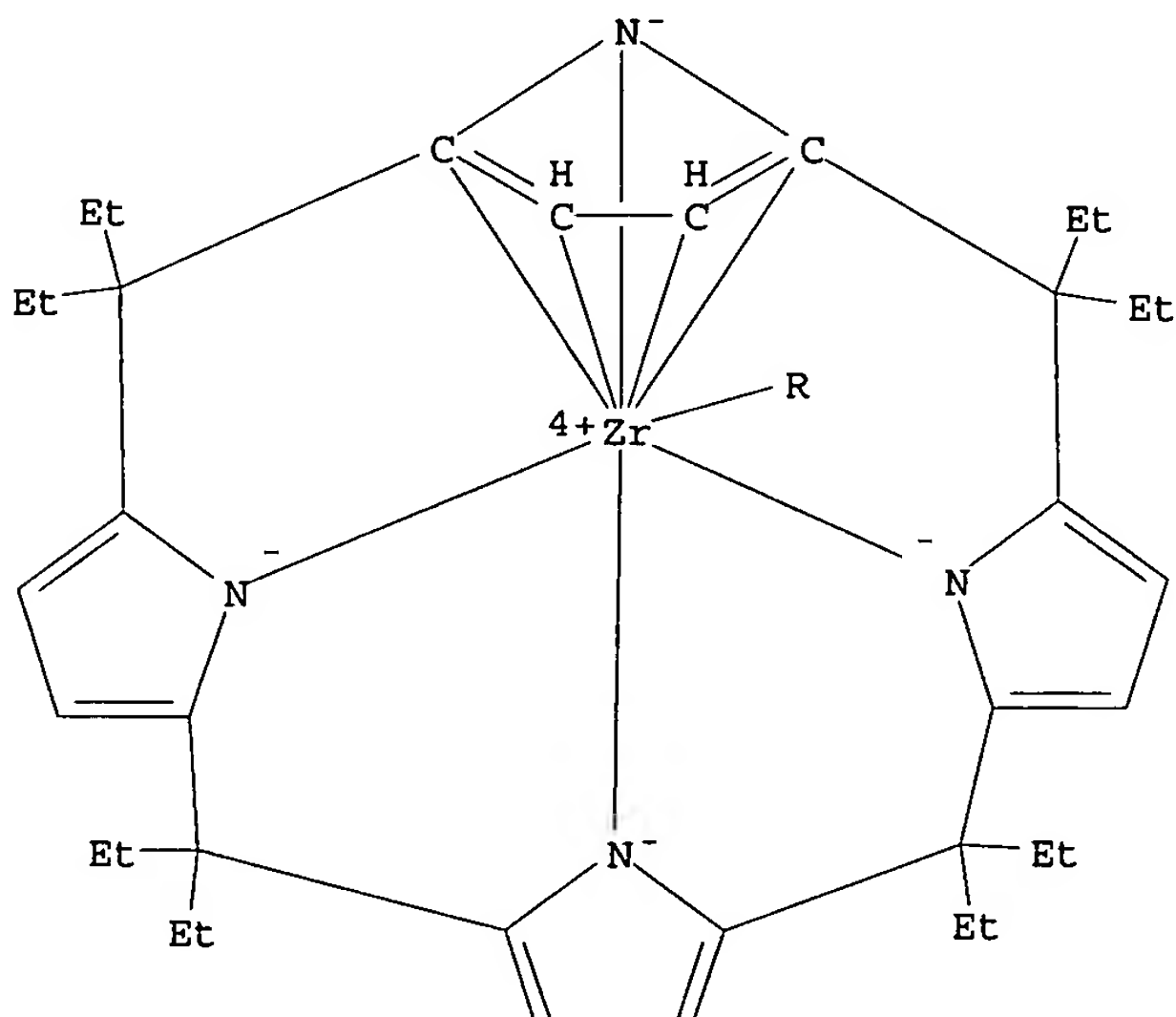
CM 4

CRN 53307-59-8
 CMF C4 H8 Li O
 CCI CCS

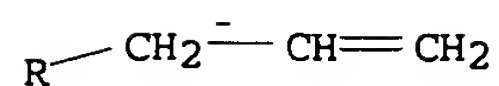


IT 170801-87-3P 170801-90-8P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP
 (Preparation)
 (preparation and mol. structure of)
 RN 170801-87-3 HCAPLUS
 CN Zirconate(1-), [(1,2,3,4- η)-5,5,10,10,15,15,20,20-octaethyl-
 5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24]-2-
 propenyl-, potassium, stereoisomer (9CI) (CA INDEX NAME)

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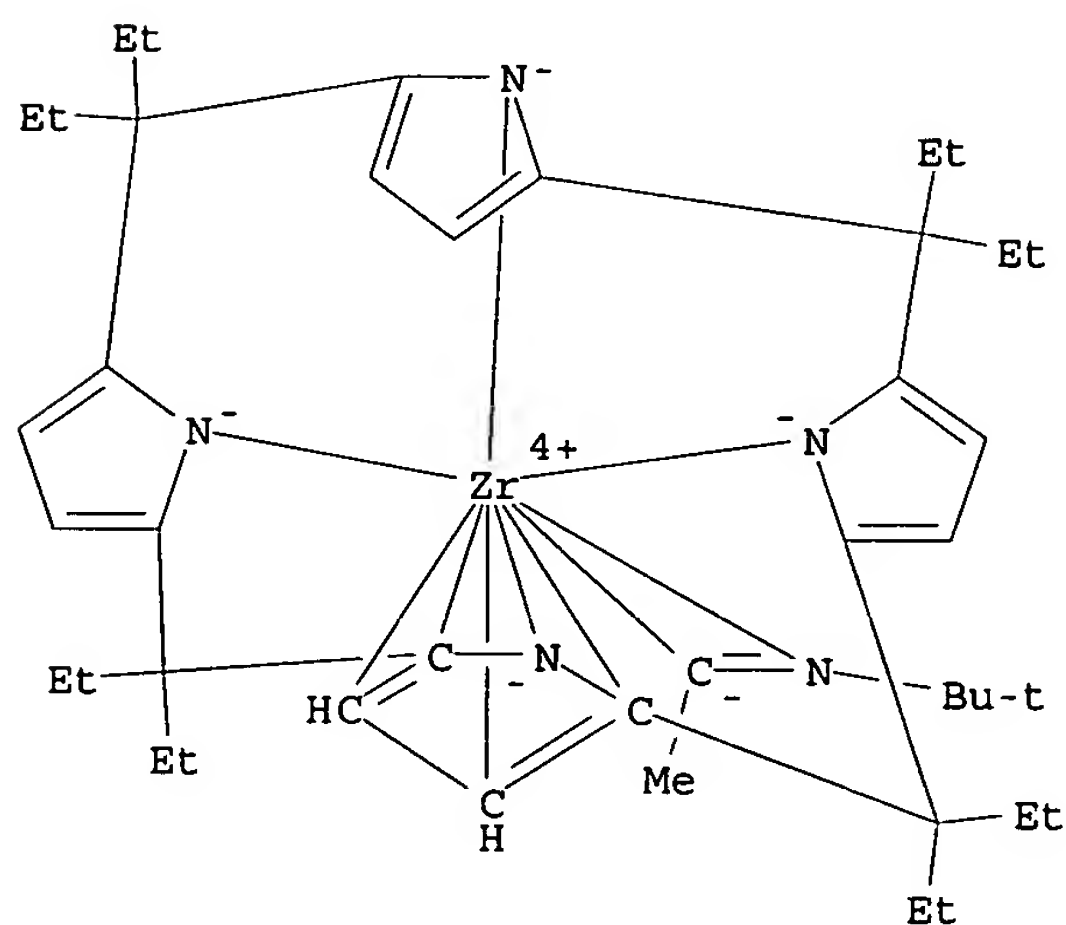
PAGE 2-A



RN 170801-90-8 HCAPLUS
 CN Lithium(1+), (tetrahydrofuran)-, stereoisomer of
 [1-[(1,1-dimethylethyl)imino]ethyl-C,N] [(1,2,3,4η)-
 5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-
 porphinato(4-)-N21,N22,N23,N24]zirconate(1-) (9CI) (CA INDEX NAME)

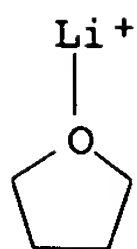
CM 1

CRN 170801-89-5
 CMF C42 H60 N5 Zr
 CCI CCS



CM 2

CRN 53307-59-8
 CMF C4 H8 Li O
 CCI CCS

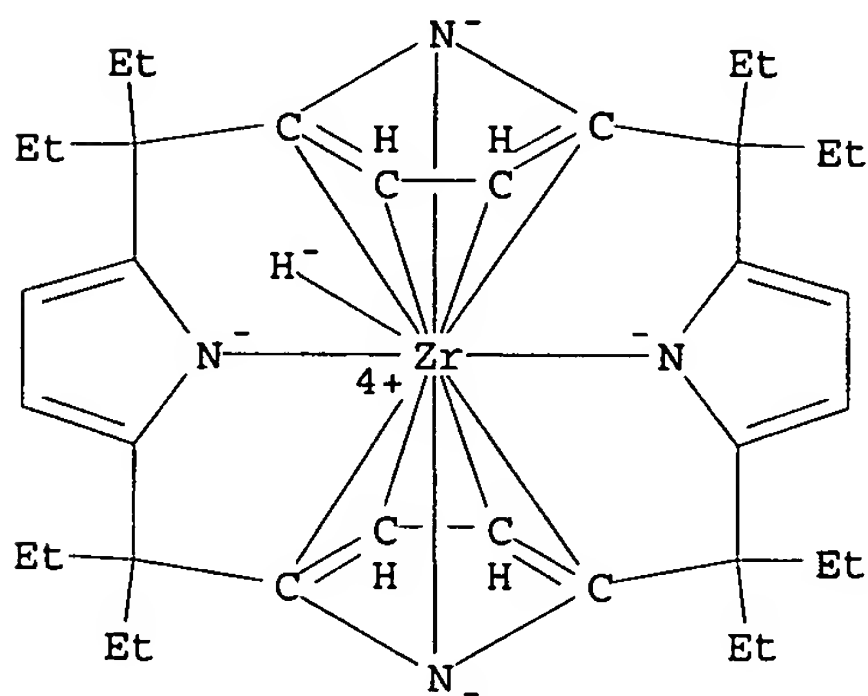


IT 149788-43-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
 RACT (Reactant or reagent)
 (preparation and reaction with ethylene)

RN 149788-43-2 HCAPLUS

CN Zirconate(1-), hydro[(1,2,3,4,11,12,13,14η)-
 5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-
 porphinato(2-)-N21,N22,N23,N24]-, potassium, stereoisomer (9CI) (CA
 INDEX NAME)



● K⁺

IT 170801-84-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
 RACT (Reactant or reagent)
 (preparation and reactions with isonitrile and potassium hydride)

RN 170801-84-0 HCAPLUS

CN Lithium(1+), bis(tetrahydrofuran)-, stereoisomer of
 methyl[(1,2,3,4-η)-5,5,10,10,15,15,20,20-octaethyl-
 5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-
 N21,N22,N23,N24]zirconate(1-) (9CI) (CA INDEX NAME)

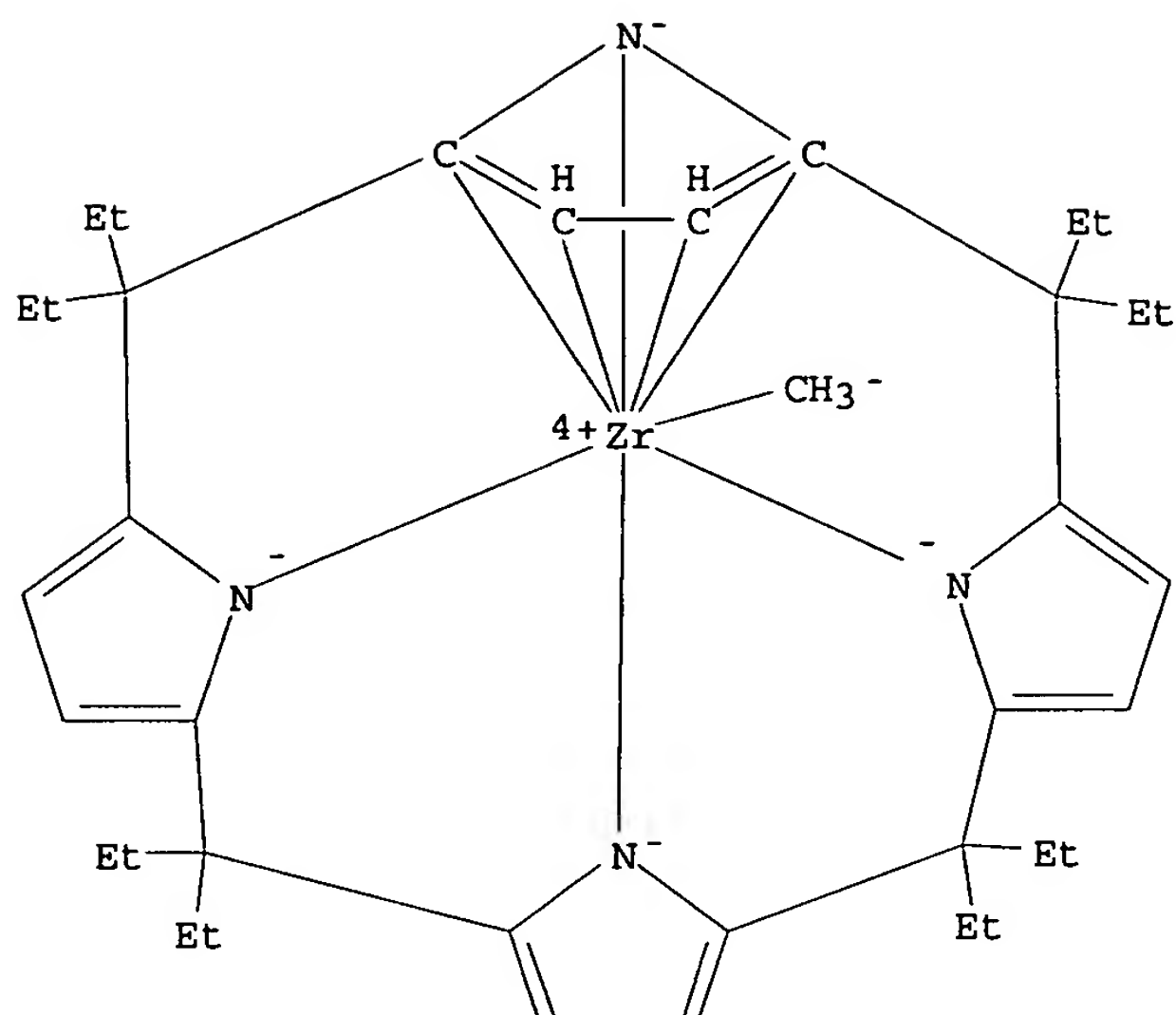
CM 1

CRN 170801-83-9

CMF C37 H51 N4 Zr

CCI CCS

PAGE 1-A

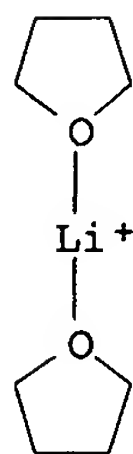


PAGE 2-A



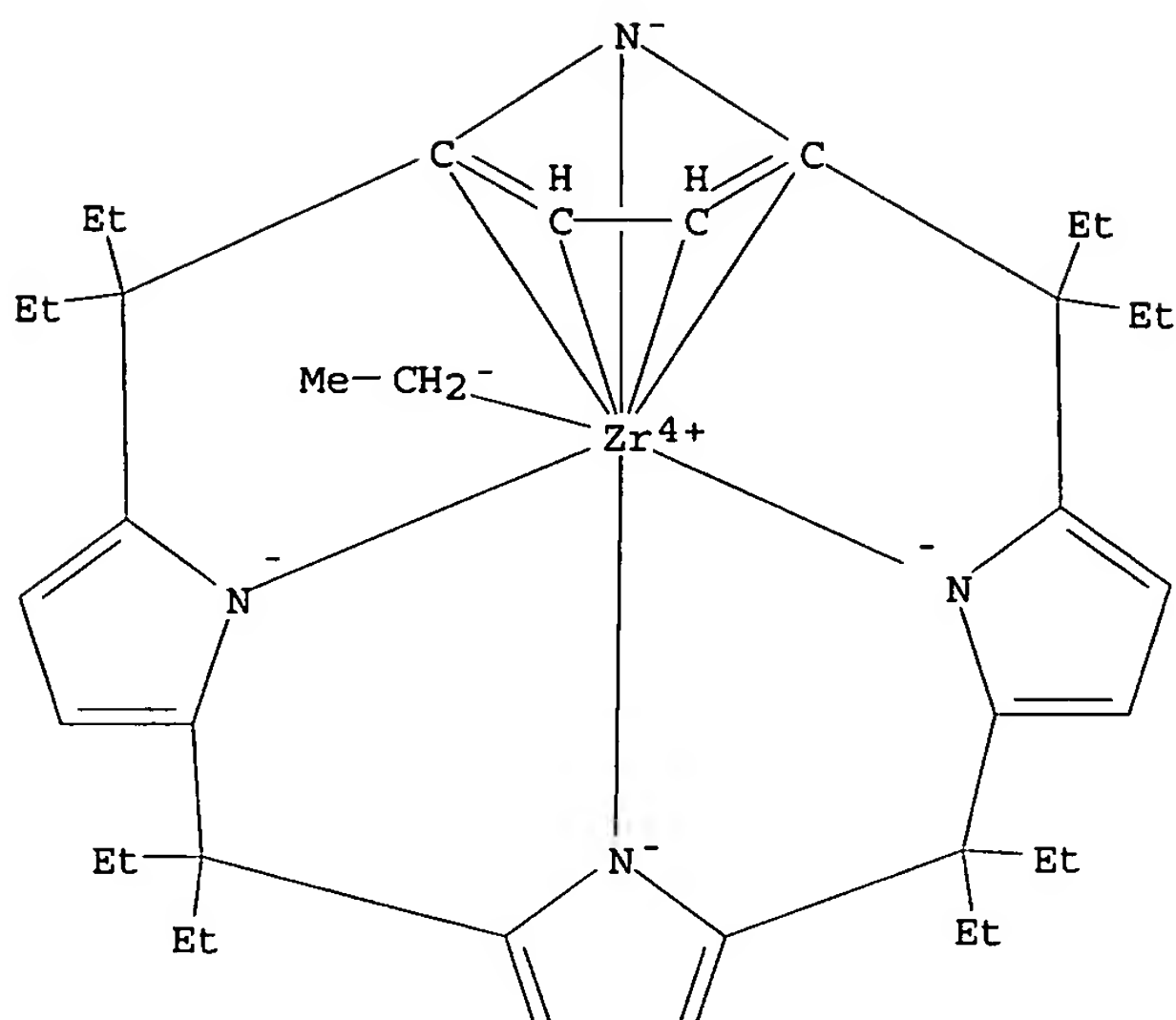
CM 2

CRN 58702-68-4
 CMF C8 H16 Li O2
 CCI CCS



IT 168331-57-5P 170801-88-4P 171029-88-2P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
 RN 168331-57-5 HCAPLUS
 CN Zirconate(1-), ethyl[(1,2,3,4η)-5,5,10,10,15,15,20,20-octaethyl-
 5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24]-,
 potassium (9CI) (CA INDEX NAME)

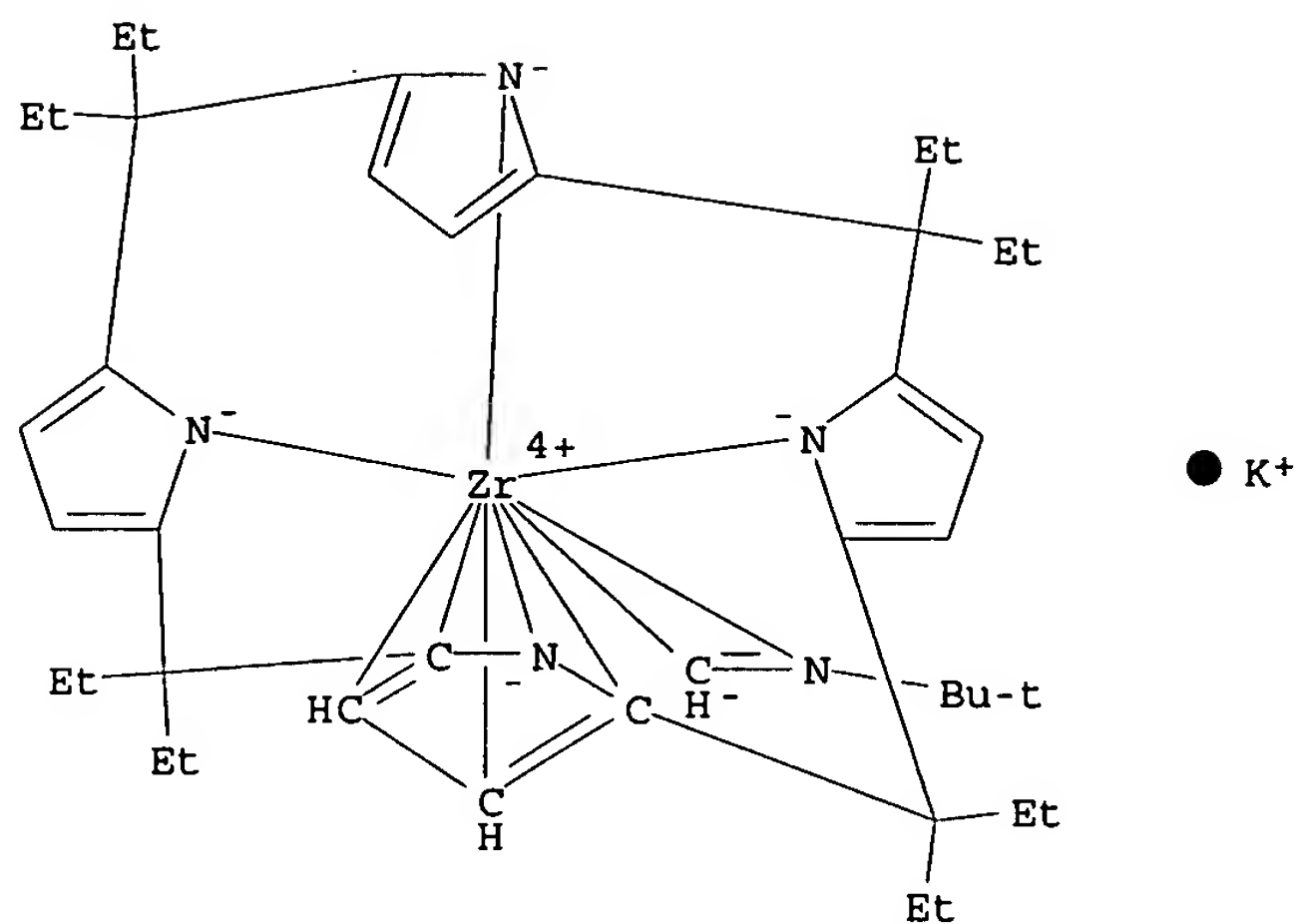
PAGE 1-A



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RN 170801-88-4 HCAPLUS
 CN Zirconate(1-), [[(1,1-dimethylethyl)imino]methyl-C,N] [(1,2,3,4-
 η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-
 21H,23H-porphinato(4-)-N21,N22,N23,N24]-, potassium, stereoisomer
 (9CI) (CA INDEX NAME)

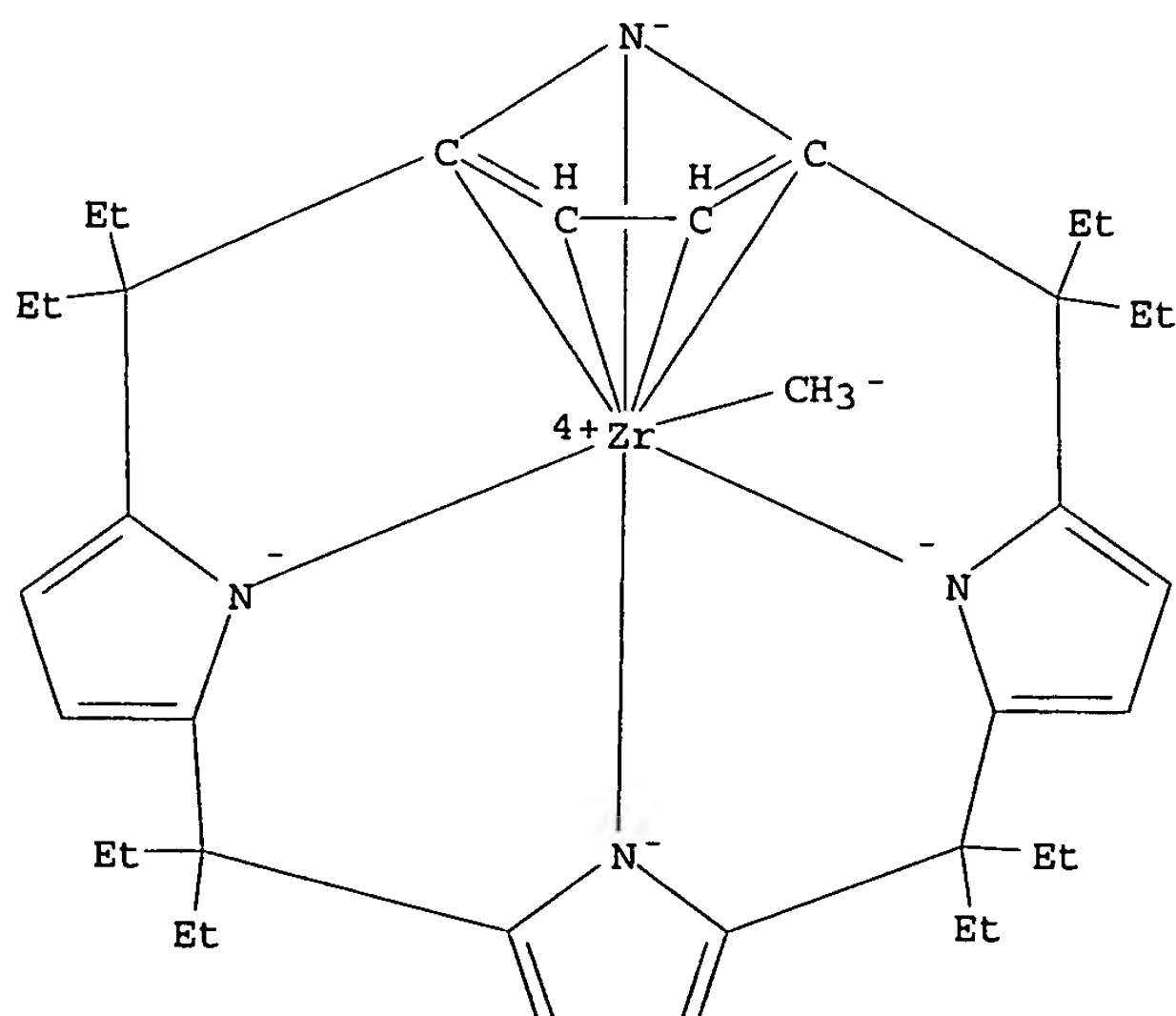


RN 171029-88-2 HCAPLUS
 CN Potassium(1+), bis(tetrahydrofuran)-, stereoisomer of
 methyl[(1,2,3,4-η)-5,5,10,10,15,15,20,20-octaethyl-
 5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-
 N21,N22,N23,N24]zirconate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 170801-83-9
 CMF C37 H51 N4 Zr
 CCI CCS

PAGE 1-A

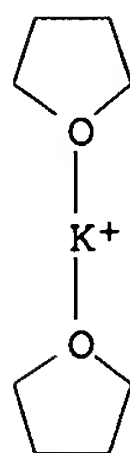


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CM 2

CRN 73836-17-6
 CMF C8 H16 K O2
 CCI CCS

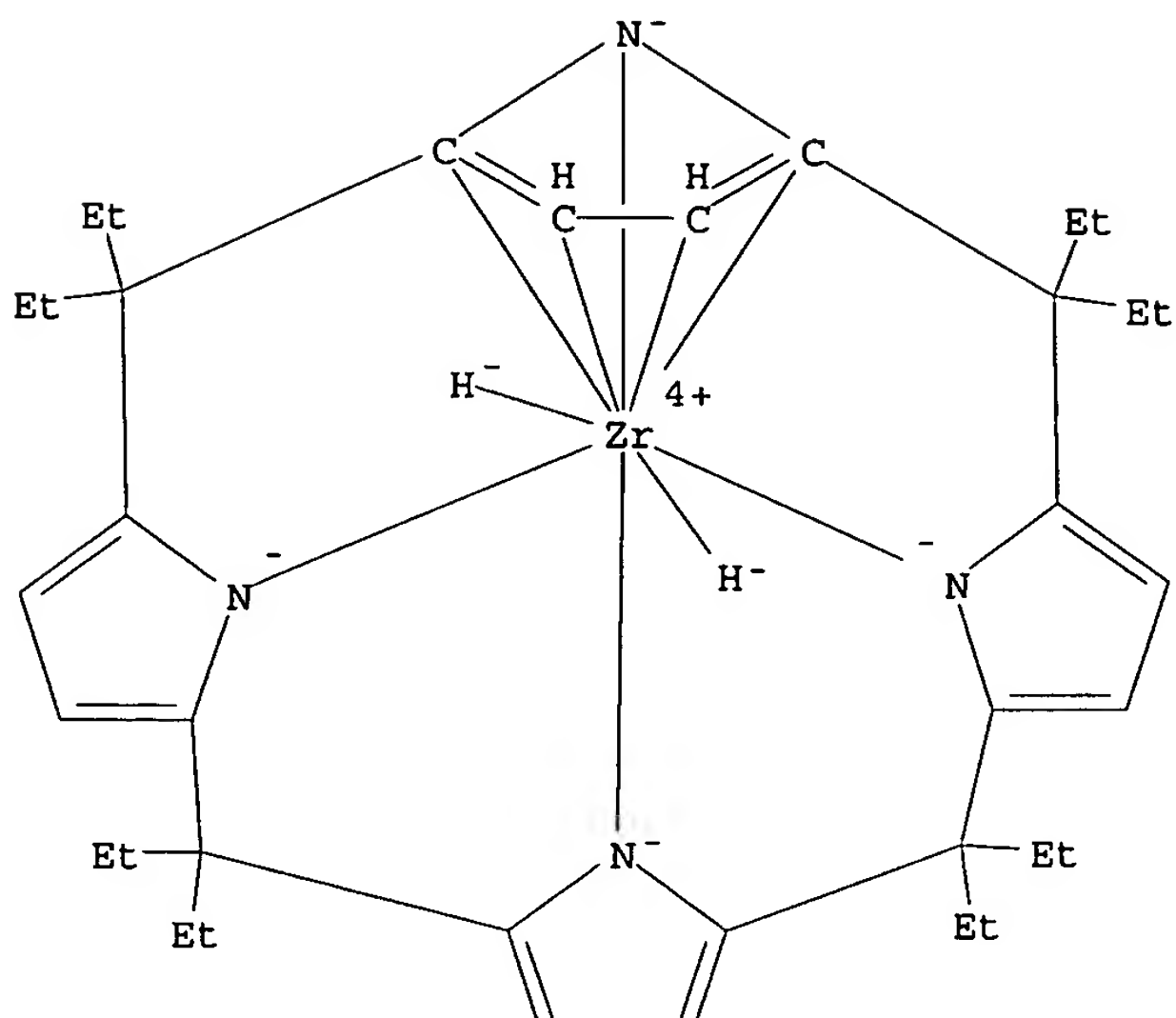


IT 170801-82-8P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
 PREP (Preparation); RACT (Reactant or reagent)
 (preparation, crystal structure and reaction with isonitrile)
 RN 170801-82-8 HCAPLUS
 CN Potassium(1+), bis(tetrahydrofuran)-, potassium
 tris(tetrahydrofuran)potassium(1+) dihydro[(1,2,3,4η)-
 5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-
 porphinato(4-)-N21,N22,N23,N24]zirconate(2-) (1:2:1:2) (9CI) (CA
 INDEX NAME)

CM 1

CRN 170801-81-7
 CMF C36 H50 N4 Zr
 CCI CCS

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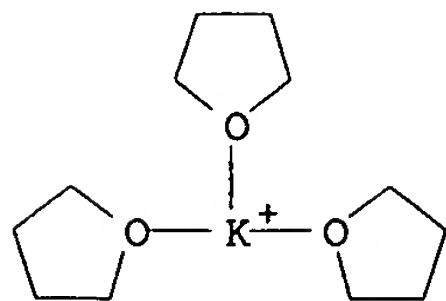


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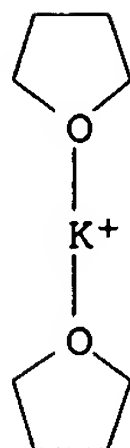
CM 2

CRN 73836-19-8
CMF C12 H24 K O3
CCI CCS

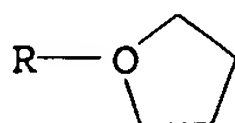
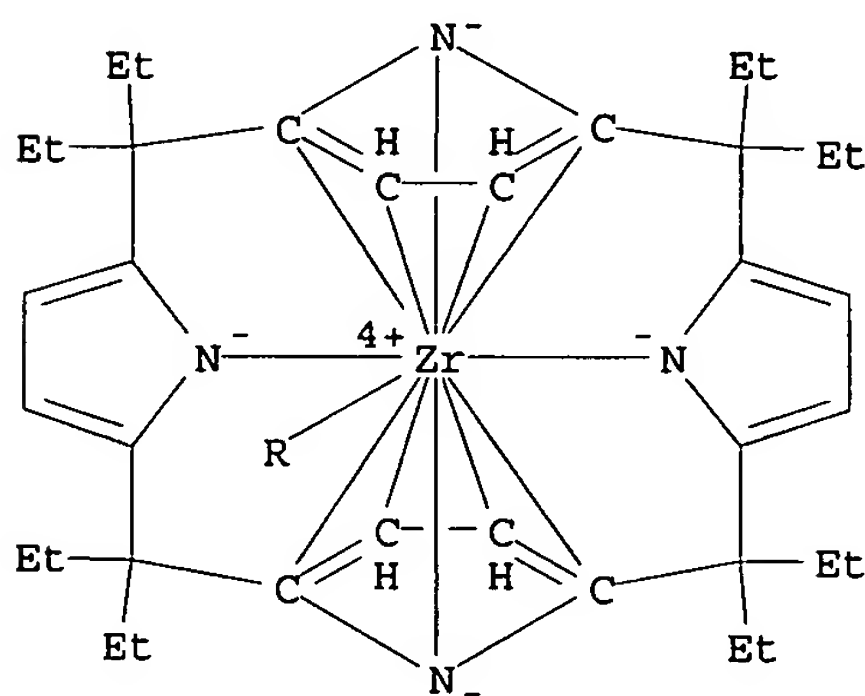


CM 3

CRN 73836-17-6
CMF C8 H16 K O2
CCI CCS



IT **148420-64-8**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactions with potassium hydride and allyl and lithium alkyls)
 RN 148420-64-8 HCAPLUS
 CN Zirconium, [(1,2,3,4,11,12,13,14 η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)- κ N21, κ N22, κ N23, κ N24] (tetrahydrofuran)-, stereoisomer (9CI) (CA INDEX NAME)



CC 29-10 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 75
 IT **170801-86-2P 171029-89-3P 171029-90-6P**
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation and crystal structure of)
 IT **170801-87-3P 170801-90-8P**
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation and mol. structure of)
 IT **149788-43-2P**
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
 RACT (Reactant or reagent)
 (preparation and reaction with ethylene)
 IT **170801-84-0P**
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

- RACT (Reactant or reagent)
 (preparation and reactions with isonitrile and potassium hydride)
- IT 168331-57-5P 170801-88-4P 171029-88-2P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
- IT 170801-82-8P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
 PREP (Preparation); RACT (Reactant or reagent)
 (preparation, crystal structure and reaction with isonitrile)
- IT 148420-64-8
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactions with potassium hydride and allyl and lithium alkyls)
- L60 ANSWER 13 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
 1995:413373 Document No. 123:198496 Electrophilic Activation of
 Aliphatic C-H Bonds Mediated by Zirconium Hydride Entities and
 Applied to the Functionalization of the Porphyrinogen Periphery.
 Jacoby, Denis; Isoz, Sylviane; Floriani, Carlo; Chiesi-Villa,
 Angiola; Rizzoli, Corrado (Institut de Chimie Minerale et
 Analytique, Universite de Lausanne, Lausanne, CH-1015, Switz.).
 Journal of the American Chemical Society, 117(10), 2805-16 (English)
 1995. CODEN: JACSAT. ISSN: 0002-7863. OTHER SOURCES: CASREACT
 123:198496. Publisher: American Chemical Society.
- AB A novel mode of electrophilic activation of aliphatic C-H bonds,
 assisted by zirconium(IV) and achieved by the use of an excess of MH
 [M = Li, Na, K], allows the functionalization of the periphery of
 meso-octaethylporphyrinogen. The reaction of [η^5 - η^1 - η^5 -
 η^1 -Et₈N₄]Zr(THF)] (1) with LiH (excess) and NaH (excess) led to
 the formation of [η^1 - η^1 - η^1 - η^5 -
 Et₇(CH₂CH₂)N₄]ZrH{Li(THF)}₂] (2) and [η^1 - η^1 - η^1 - η^5 -
 Et₇(CH₂CH₂)N₄]ZrH{Na(THF)}₂] (3), containing a Zr-C bond, derived from
 the metalation of one of the meso Et groups, and a triply bridged
 hydrido ligand. The analogous potassium derivative,
 [η^1 - η^1 - η^1 - η^5 -Et₇(CH₂CH₂)N₄]ZrH{K(THF)}₂] (4), has
 been obtained only from a metathesis reaction reacting 2 with KH at
 room temperature. The reaction of 1 with an excess of KH under drastic
 conditions gave a mixture of dimetalated forms derived from the
 metalation of two Et groups, they are [η^1 - η^1 - η^1 - η^1 -
 Et₆(CHCH₃)₂N₄]Zr{K(THF)₂}₂] (5) (75%) and [η^1 - η^1 - η^1 -
 η^1 -Et₆(CH₂CH₂)₂N₄]Zr{K(THF)₂}₂] (6) (25%). The conversion of 4
 into a mixture of 5 and 6 has been observed in the presence of an excess
 of KH under forcing conditions. Such a conversion gives some
 insight into the metalation mechanism. In particular, the
 transformation of 4 into 5 and 6 suggests a facile Zr-C and C-H
 σ -bond metathesis. The insertion of ButNC into the Zr-C bond
 of 2 led to the formation of an η^2 -iminoacyl,
 [η^1 - η^1 - η^1 - η^5 -Et₇(CH₂CH₂- η^2 -
 C:NBu)₂]ZrH{Li(THF)}₂] (7), which undergoes, in water, a hydrolytic
 cyclization to [Et₇(CH₂CH₂COC₄H₄N)(C₄H₂NH)₃] (9) via the attack of a
 carbenium η^2 -iminoacyl on one of the pyrrolyl anions. The
 intermediacy of such a migrated carbenium η^2 -iminoacyl has been
 observed during the controlled protolysis of 7 in aprotic solvents
 using PhNH₂·HCl, which led to the isolation of
 [η^1 - η^1 - η^5 - η^1 -Et₇(CH₂CH₂C(NBu)C₄H₄N)(C₄H₂N)₃ZrNHPh]
 (10). The spontaneous migration of a carbenium η^2 -acyl from the
 metal to a pyrrolyl anion has been observed in the reaction of 2 with
 either carbon monoxide or [Mo(CO)₆]. Both reactions led, via
 intermediates very similar to 9 and 10, to the homologation of a
 pyrrole ring and the cleavage of the C-O bond. The resulting
 zirconyl compound η^1 - η^1 - η^5 - η^1 -
 Et₇(C₄H₂N)₃(CH₂CH₂C₅H₂N)Zr:O-Li]₂ (11) has been isolated as a dimer.
 The reaction of 2 with ButNC and CO emphasizes how the direct

functionalization of an aliphatic chain in porphyrinogen chemical can be achieved and used for synthetic purposes. Crystallog. details: 2 is triclinic, space group P1, $a = 11.394(4) \text{ \AA}$, $b = 20.135(5) \text{ \AA}$, $c = 10.791(3) \text{ \AA}$, $\alpha = 103.34(2)^\circ$, $\beta = 117.88(2)^\circ$, $\gamma = 79.27(2)^\circ$, $Z = 2$, and $R = 0.048$.

The mixture of 5 + 6 is monoclinic, space group C2/c, $a = 14.090(1) \text{ \AA}$, $b = 17.366(2) \text{ \AA}$, $c = 21.365(3) \text{ \AA}$, $\alpha = \gamma = 90^\circ$, $\beta = 91.84(1)^\circ$, $Z = 4$, and $R = 0.045$. The compound 7 is monoclinic, space group P21/n, $a = 12.152(2) \text{ \AA}$, $b = 20.190(3) \text{ \AA}$, $c = 20.039(3) \text{ \AA}$, $\alpha = \gamma = 90^\circ$, $\beta = 103.39(2)^\circ$, $Z = 4$, and $R = 0.041$.

Compound 10 is monoclinic, space group P21/c, $a = 10.325(2) \text{ \AA}$, $b = 19.824(3) \text{ \AA}$, $c = 21.114(4) \text{ \AA}$, $\alpha = \gamma = 90^\circ$, $\beta = 102.72(2)^\circ$, $Z = 4$, and $R = 0.060$.

Compound 11 is monoclinic, space group P21/n, $a = 14.774(4) \text{ \AA}$, $b = 17.745(5) \text{ \AA}$, $c = 15.771(4) \text{ \AA}$, $\alpha = \gamma = 90^\circ$, $\beta = 101.55(2)^\circ$, $Z = 2$, and $R = 0.067$.

IT 167701-46-4P 167701-54-4P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(crystal structure; electrophilic activation of aliphatic C-H bonds mediated by zirconium hydride entities in functionalization of porphyrinogen periphery)

RN 167701-46-4 HCAPLUS

CN Lithium(1+), (tetrahydrofuran)-, hydro[5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(5-)]zirconate(2-) (2:1) (9CI) (CA INDEX NAME)

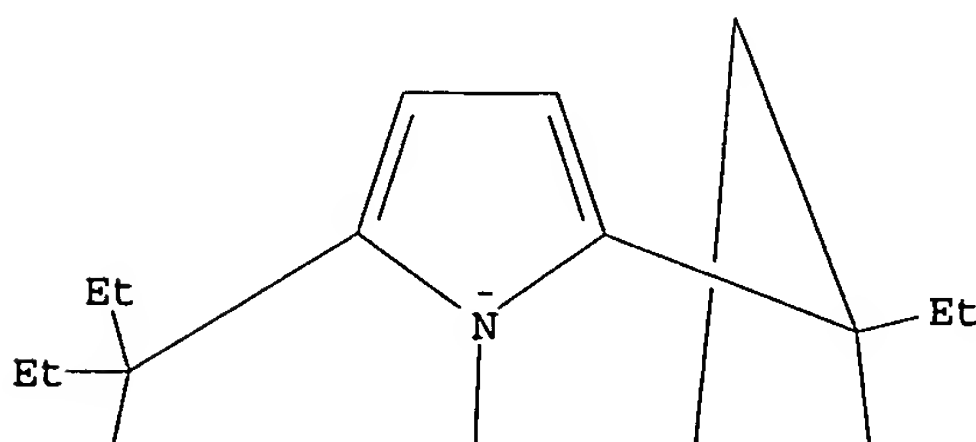
CM 1

CRN 167701-45-3

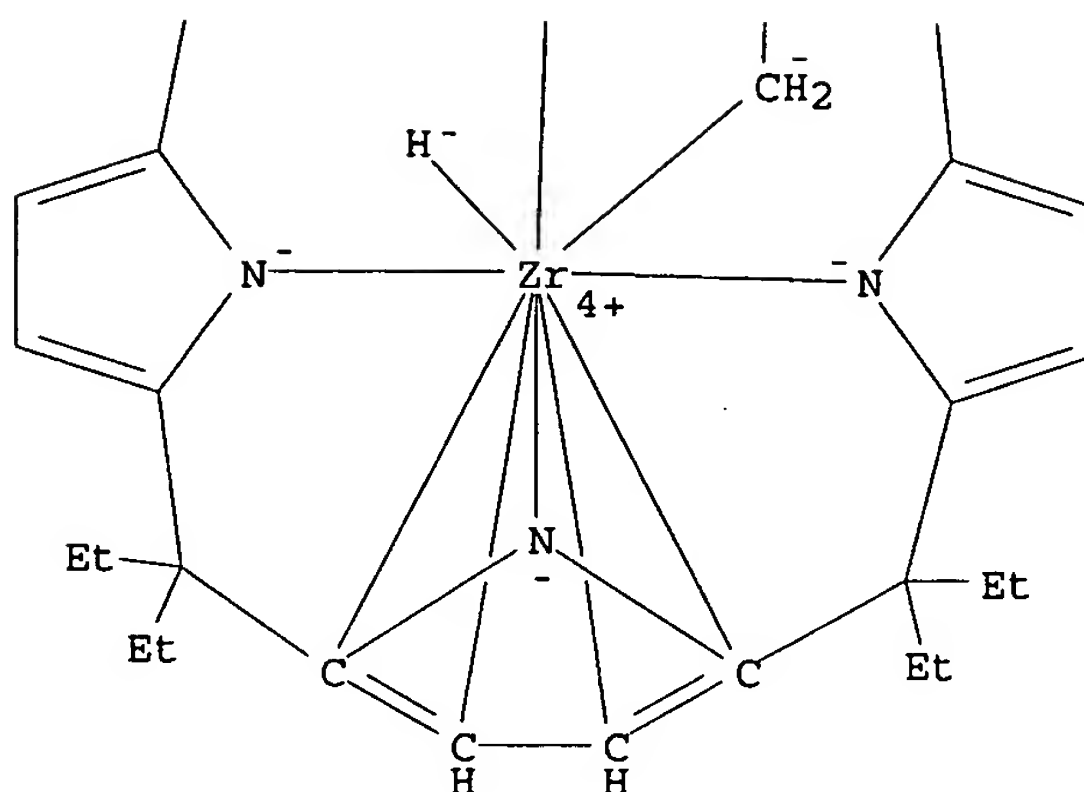
CMF C36 H48 N4 Zr

CCI CCS

PAGE 1-A



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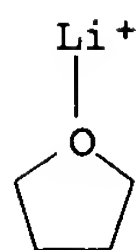


CM 2

CRN 53307-59-8

CMF C4 H8 Li O

CCI CCS



RN 167701-54-4 HCAPLUS

CN Lithium(1+), (tetrahydrofuran) -, [N-[3-[(11,12,13,14η)-5,10,10,15,15,20,20-heptaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphin-5-yl-κN21,κN22,κN23,κN24]propylidene-κC1]-2-methyl-2-propanaminato(5-) κN]hydrozirconate(2-)
(2:1) (9CI) (CA INDEX NAME)

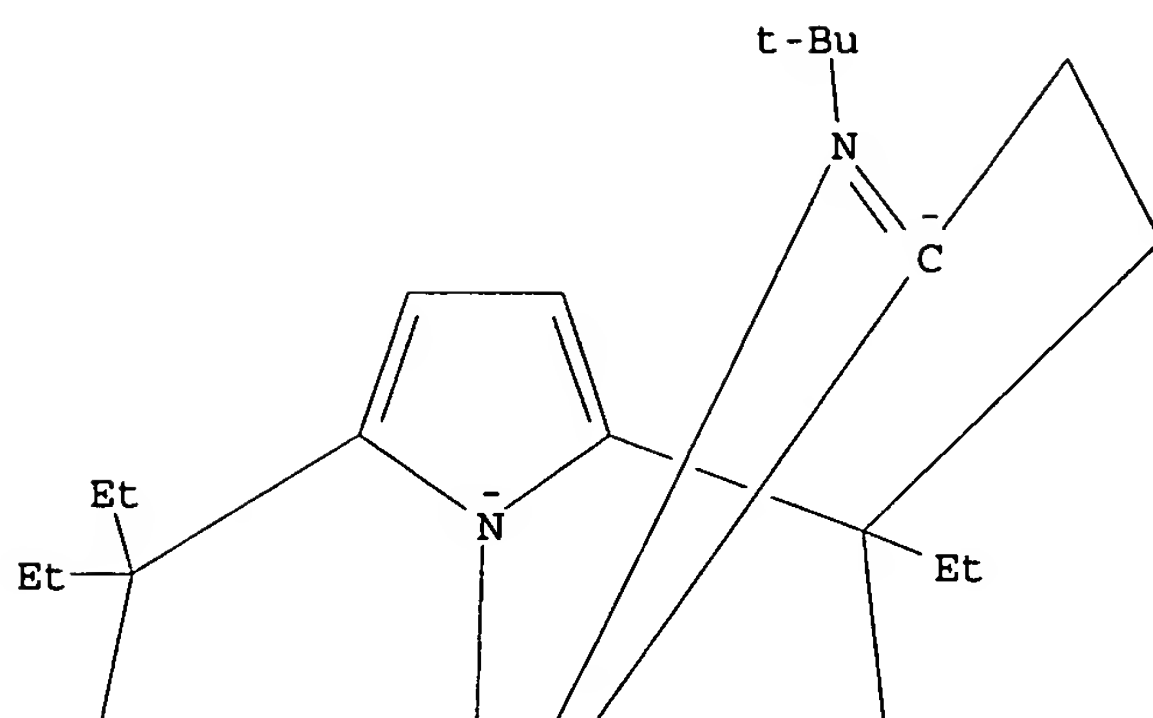
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CRN 167701-53-3

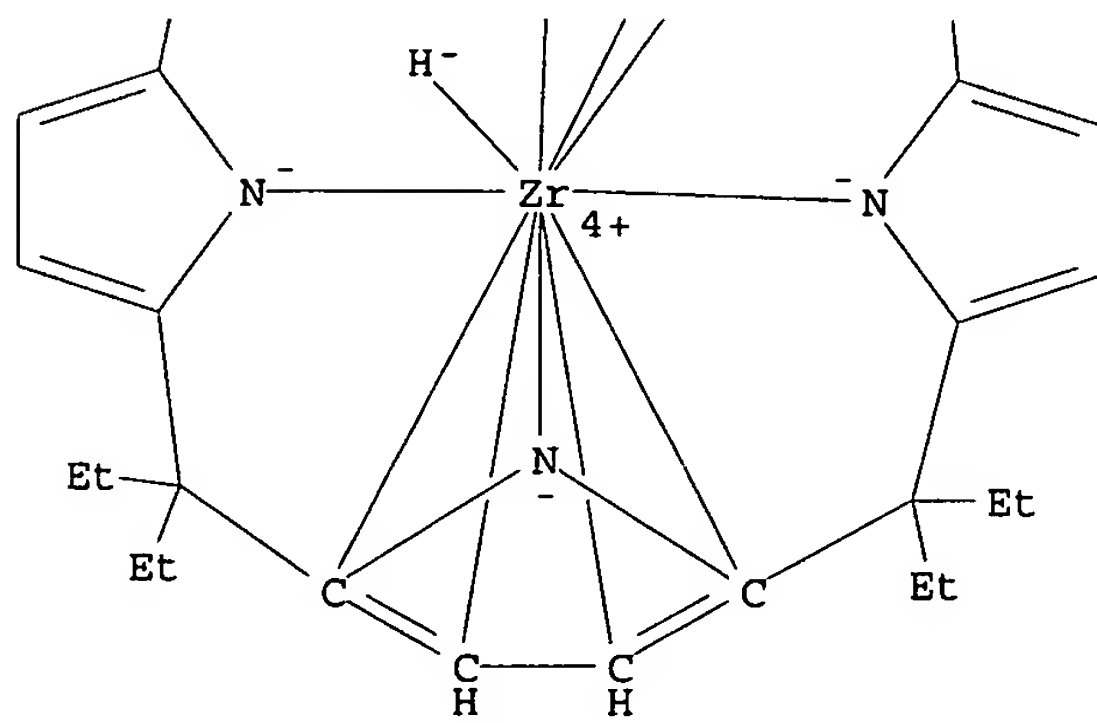
CMF C41 H57 N5 Zr

CCI CCS

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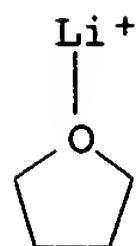


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CM 2

CRN 53307-59-8
CMF C4 H8 Li O
CCI CCS

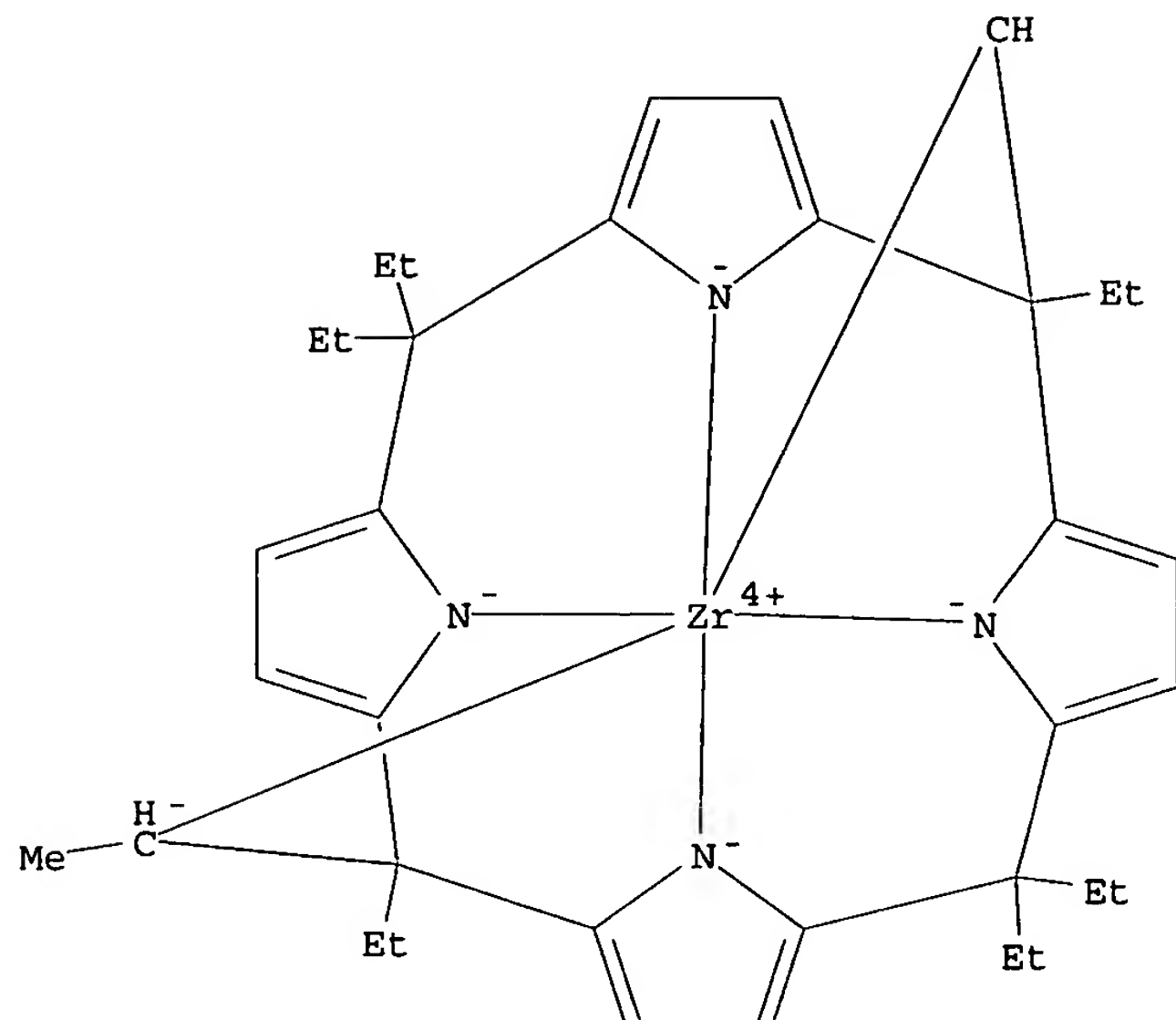


IT 167701-50-0P 167701-56-6P 167701-58-8P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP
 (Preparation)
 (crystal structure; electrophilic activation of aliphatic C-H bonds
 mediated by zirconium hydride entities in functionalization of
 porphyrinogen periphery)
 RN 167701-50-0 HCAPLUS
 CN Potassium(1+), bis(tetrahydrofuran)-, [TP-6-1'1'2'-(R*,R*)]-
 [5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-
 porphinato(6-)]zirconate(2-) (2:1) (9CI) (CA INDEX NAME)
 CM 1
 CRN 167701-49-7
 CMF C36 H46 N4 Zr
 CCI CCS

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Me
 /
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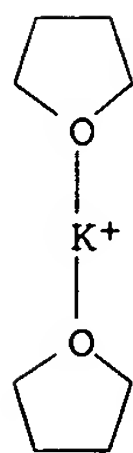


PAGE 3-A



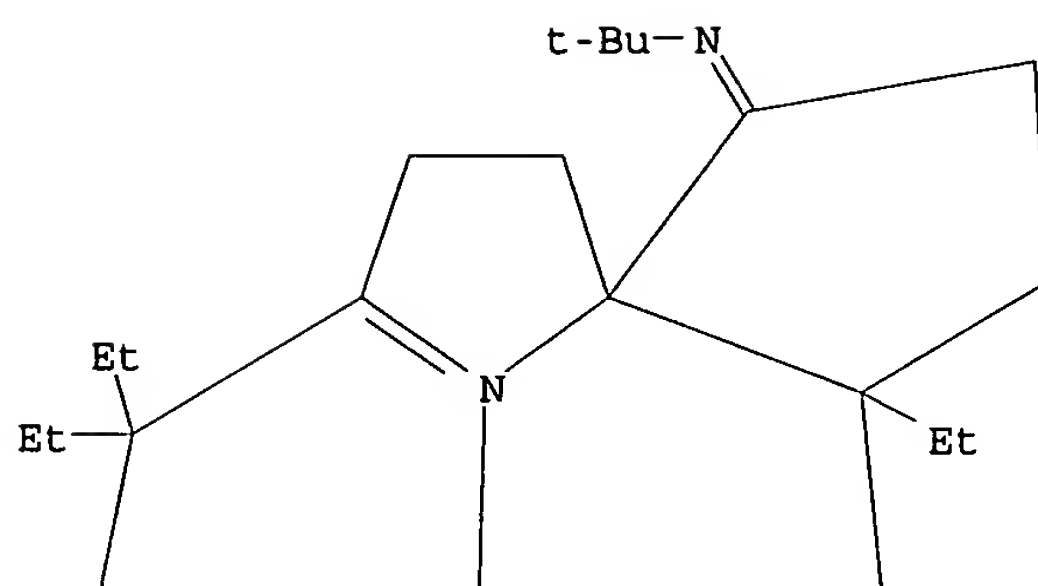
CM 2

CRN 73836-17-6
 CMF C8 H16 K O2
 CCI CCS

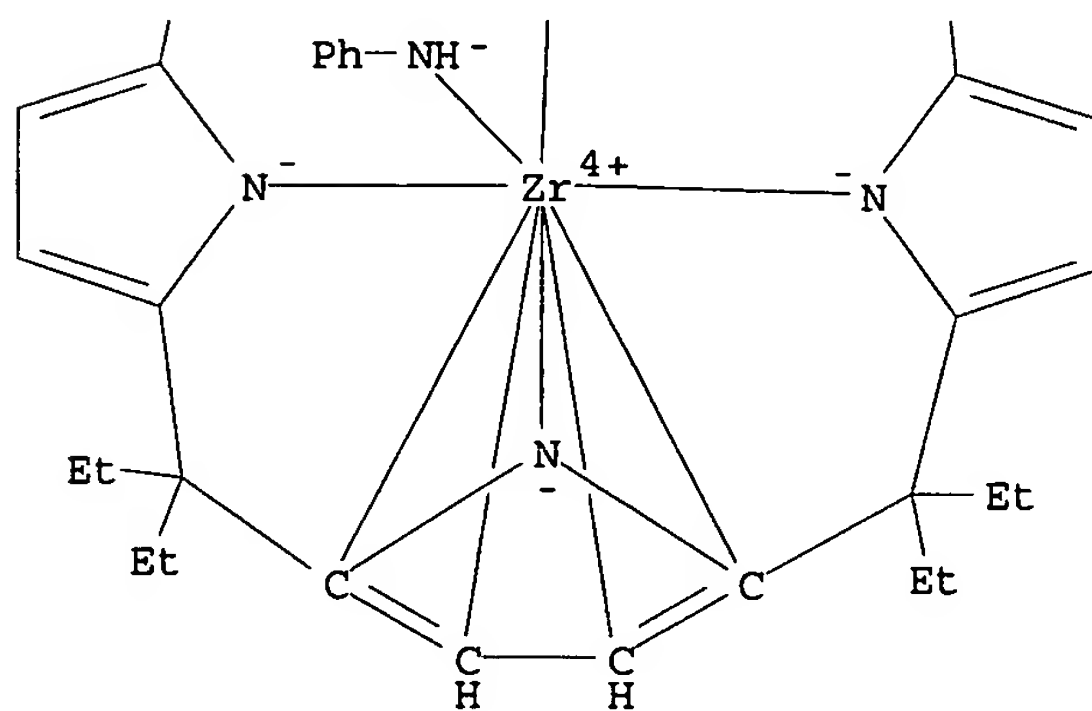


RN 167701-56-6 HCAPLUS
 CN Zirconium, (benzenaminato) [N-(7,7,12,12,17,17,21a-heptaethyl-4,5,7,12,17,21a-hexahydro-3a,6-nitrilo-1H-cyclopentacycloeicosene-8,11:13,16:18,21-triimin-3(2H)-ylidene)-2-methyl-2-propanaminato(3-)]-, stereoisomer (9CI) (CA INDEX NAME)

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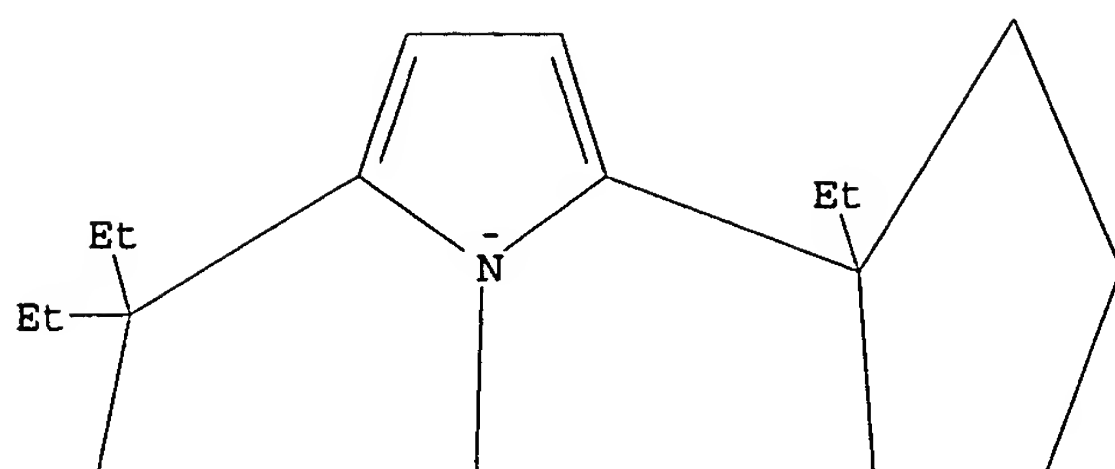


RN 167701-58-8 HCAPLUS
 CN Zirconate(1-), [(4,5,6,7-η)-3,3,8,8,13,13,17a-heptaethyl-3,8,13,17a,18,19-hexahydro-2,20-etheno-4,7:9,12:14,17-triiminocyclopent[bl]azacyclononadecinato(3-)-N1,N23,N24,N25]oxo-, stereoisomer, lithium, compd. with methylbenzene (5:3) (9CI) (CA INDEX NAME)

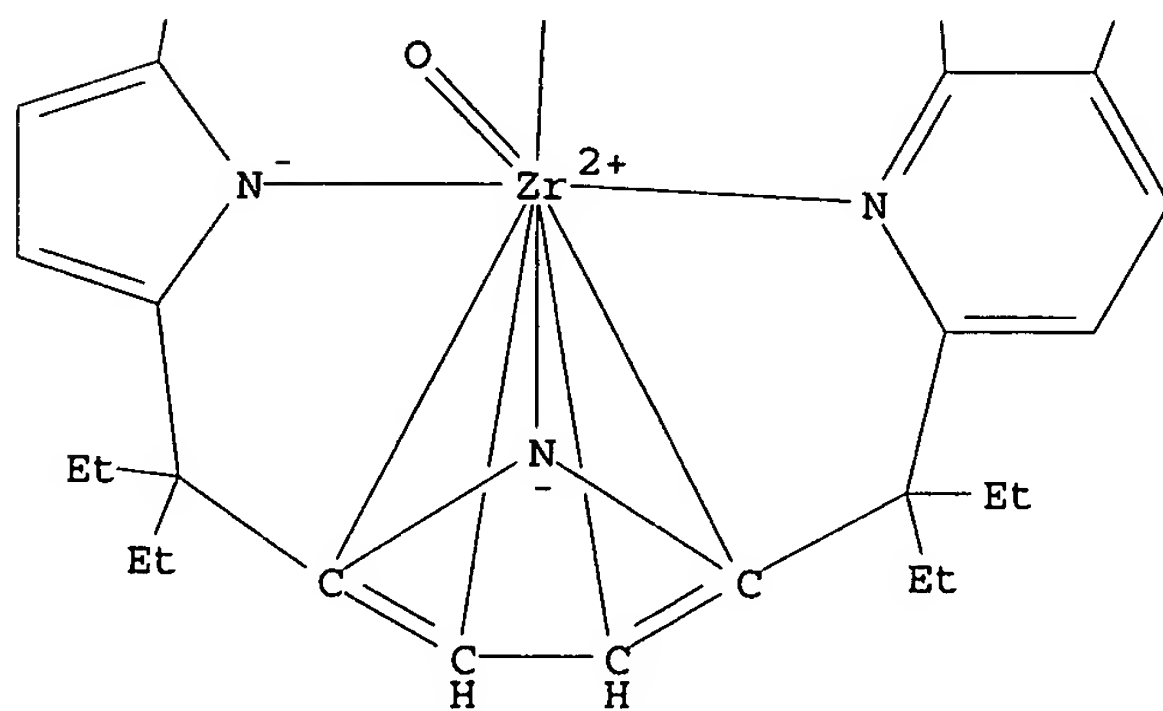
CM 1

CRN 167701-57-7
 CMF C37 H47 N4 O Zr . Li
 CCI CCS

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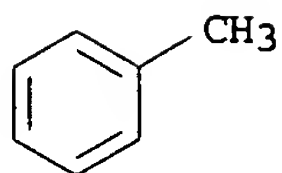


● Li⁺

CM 2

CRN 108-88-3

CMF C7 H8

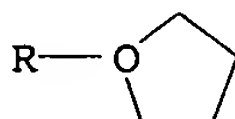
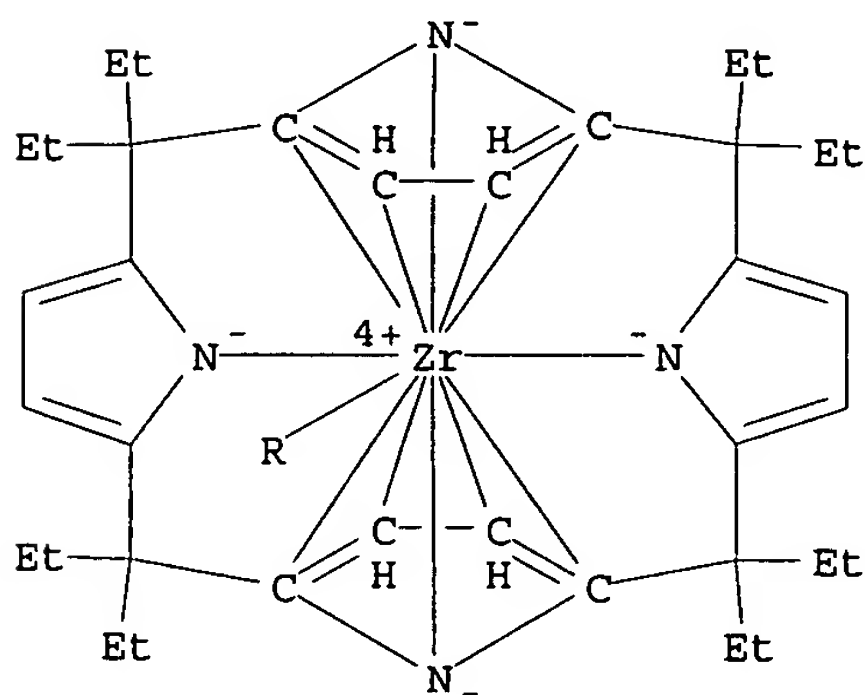


IT 148420-64-8

RL: RCT (Reactant); RACT (Reactant or reagent)
 (electrophilic activation of aliphatic C-H bonds mediated by
 zirconium hydride entities in functionalization of porphyrinogen
 periphery)

RN 148420-64-8 HCAPLUS

CN Zirconium, [(1,2,3,4,11,12,13,14 η)-5,5,10,10,15,15,20,20-
 octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-
 κ N21, κ N22, κ N23, κ N24] (tetrahydrofuran)-,
 stereoisomer (9CI) (CA INDEX NAME)



IT 167701-48-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
 RACT (Reactant or reagent)
 (electrophilic activation of aliphatic C-H bonds mediated by
 zirconium hydride entities in functionalization of porphyrinogen
 periphery)

RN 167701-48-6 HCAPLUS

CN Potassium(1+), (tetrahydrofuran)-, hydro[5,5,10,10,15,15,20,20-
 octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(5-
)]zirconate(2-) (2:1) (9CI) (CA INDEX NAME)

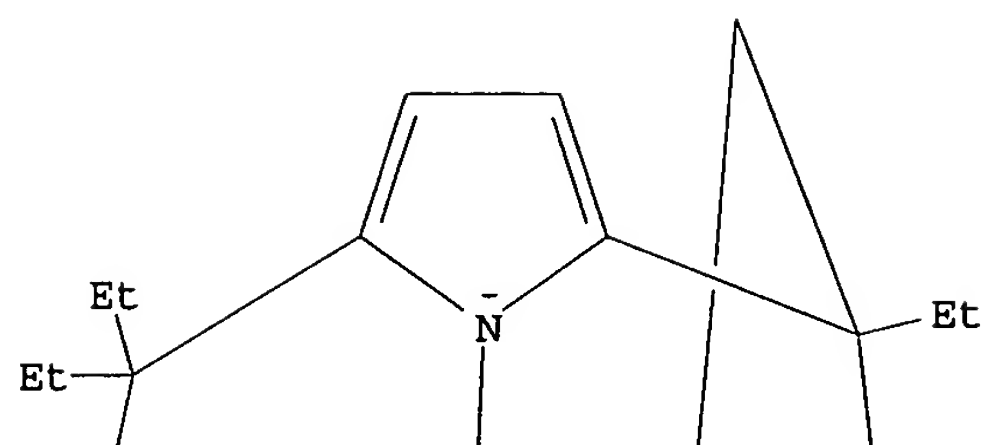
CM 1

CRN 167701-45-3

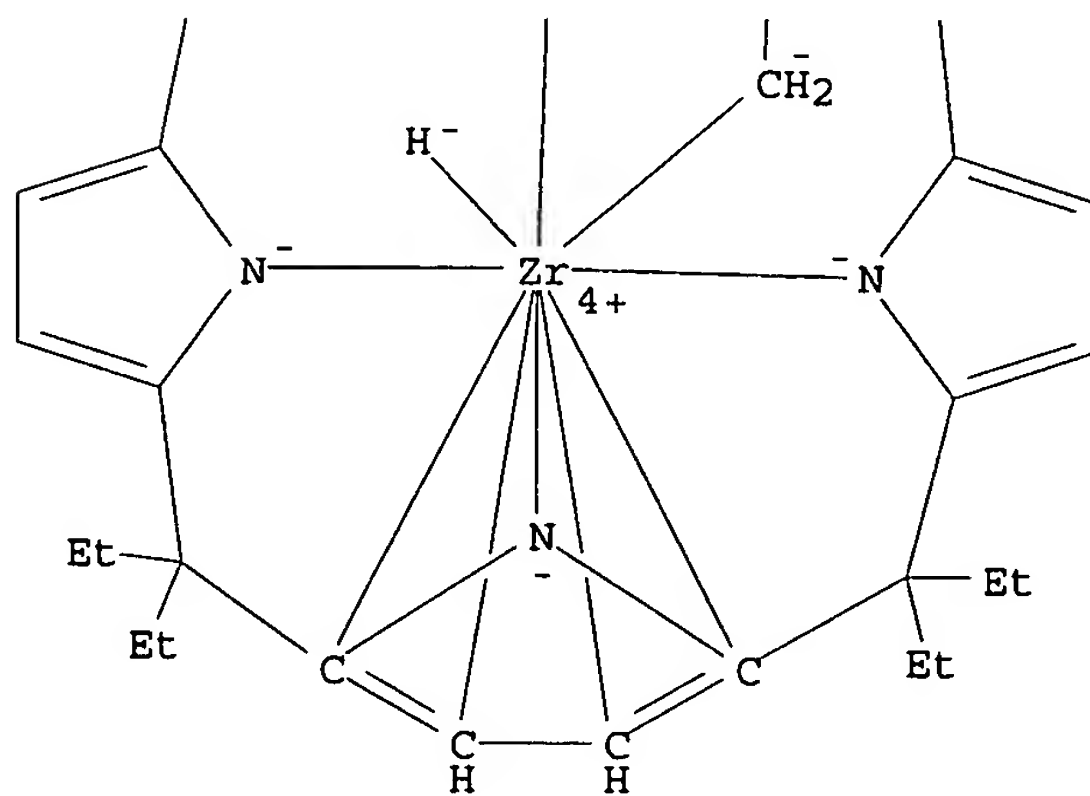
CMF C36 H48 N4 Zr

CCI CCS

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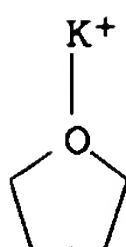


CM 2

CRN 61915-33-1

CMF C4 H8 K O

CCI CCS



IT 167701-47-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(electrophilic activation of aliphatic C-H bonds mediated by
zirconium hydride entities in functionalization of porphyrinogen
periphery)

RN 167701-47-5 HCAPLUS

CN Sodium(1+), (tetrahydrofuran)-, hydro[5,5,10,10,15,15,20,20-
octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(5-
)]zirconate(2-) (2:1) (9CI) (CA INDEX NAME)

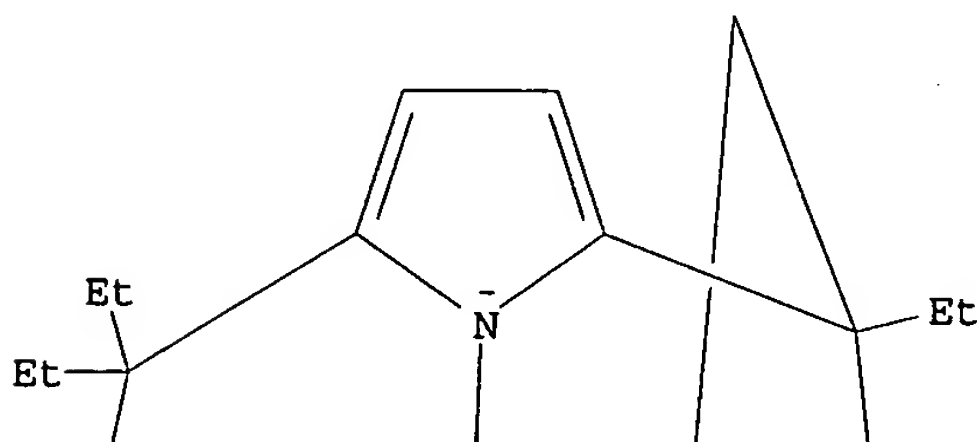
CM 1

CRN 167701-45-3

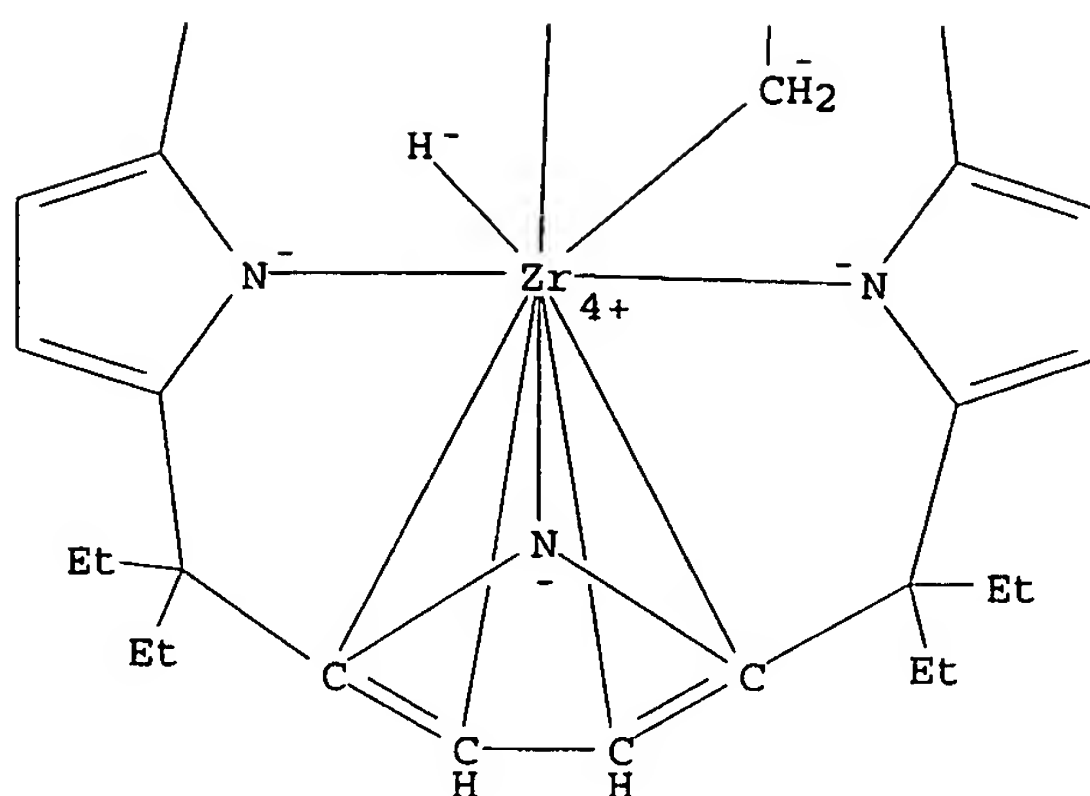
CMF C36 H48 N4 Zr

CCI CCS

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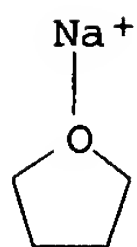


CM 2

CRN 21057-96-5

CMF C4 H8 Na O

CCI CCS



IT 167701-57-7P

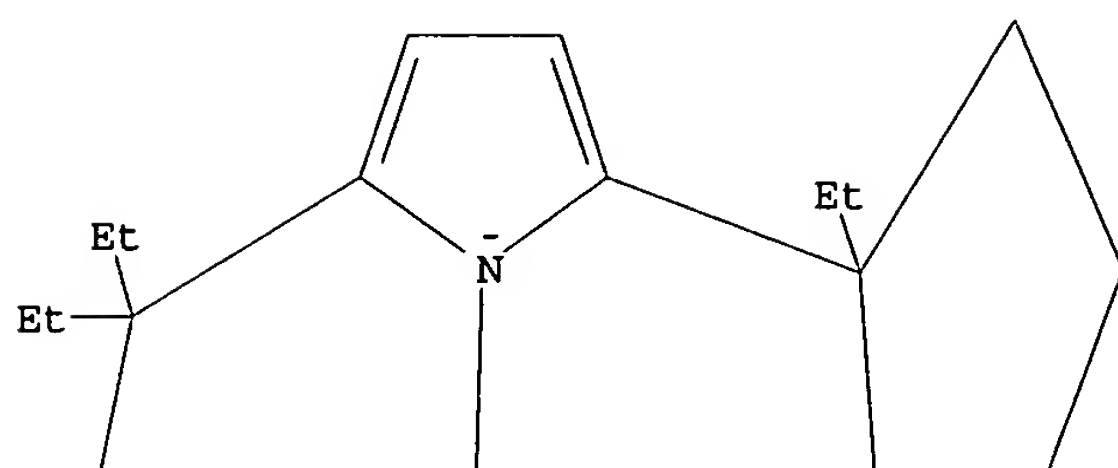
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(mol. structure; electrophilic activation of aliphatic C-H bonds mediated by zirconium hydride entities in functionalization of porphyrinogen periphery)

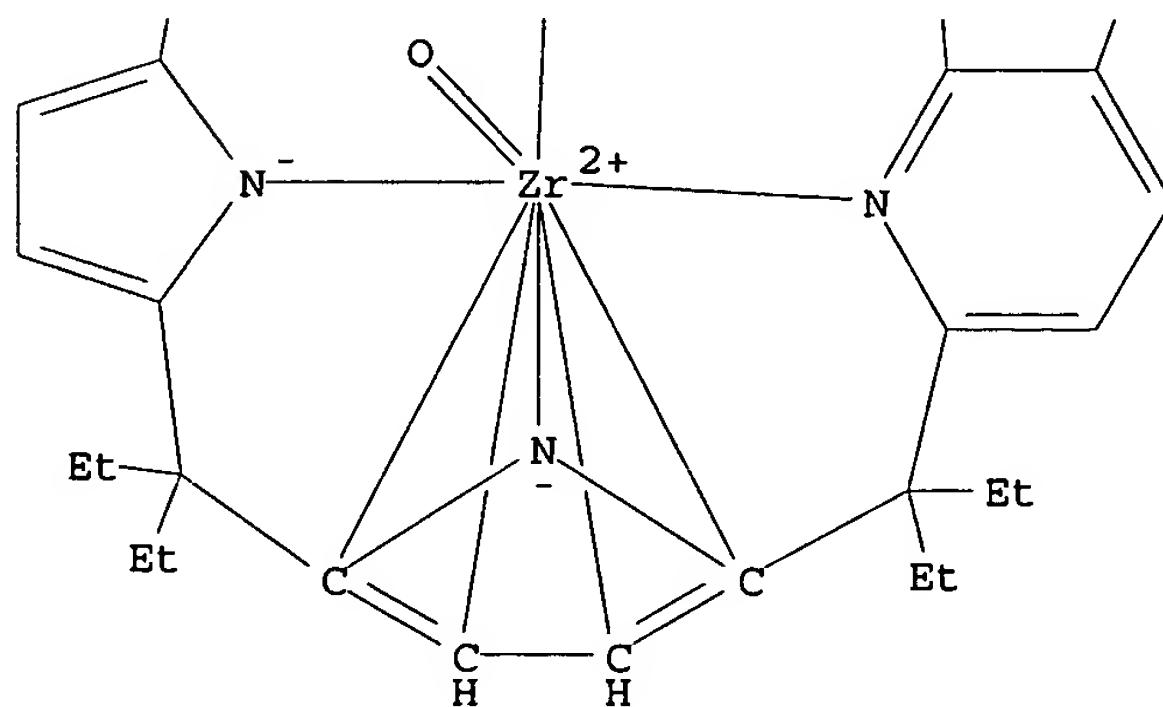
RN 167701-57-7 HCAPLUS

CN Zirconate(1-), [(4,5,6,7-η)-3,3,8,8,13,13,17a-heptaethyl-3,8,13,17a,18,19-hexahydro-2,20-etheno-4,7:9,12:14,17-triiminocyclopent[b]azacyclononadecinato(3-)-N1,N23,N24,N25]oxo-, lithium, stereoisomer (9CI) (CA INDEX NAME)

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PAGE 2-A

● Li⁺

- CC 26-7 (Biomolecules and Their Synthetic Analogs)
 Section cross-reference(s): 29, 75, 78
- IT 167701-46-4P 167701-54-4P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
 PREP (Preparation); RACT (Reactant or reagent)
 (crystal structure; electrophilic activation of aliphatic C-H bonds
 mediated by zirconium hydride entities in functionalization of
 porphyrinogen periphery)
- IT 167701-50-0P 167701-52-2P 167701-56-6P
 167701-58-8P

- RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(crystal structure; electrophilic activation of aliphatic C-H bonds mediated by zirconium hydride entities in functionalization of porphyrinogen periphery)
- IT 142-04-1, Aniline hydrochloride 7188-38-7, tert-Butyl isocyanide 148420-64-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrophilic activation of aliphatic C-H bonds mediated by zirconium hydride entities in functionalization of porphyrinogen periphery)
- IT 167701-48-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(electrophilic activation of aliphatic C-H bonds mediated by zirconium hydride entities in functionalization of porphyrinogen periphery)
- IT 167701-47-5P 167701-55-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(electrophilic activation of aliphatic C-H bonds mediated by zirconium hydride entities in functionalization of porphyrinogen periphery)
- IT 167701-57-7P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(mol. structure; electrophilic activation of aliphatic C-H bonds mediated by zirconium hydride entities in functionalization of porphyrinogen periphery)

L60 ANSWER 14 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1995:413369 Document No. 123:227878 Macrocyclic Modification Using Organometallic Methodologies. Regiochemically Controlled Mono- and Bis-Homologation Reactions of Porphyrinogen with Carbon Monoxide Assisted by Early Transition Metals. Jacoby, Denis; Isoz, Sylviane; Floriani, Carlo; Chiesi-Villa, Angiola; Rizzoli, Corrado (Institut de Chimie Minerale et Analytique, Universite de Lausanne, Lausanne, CH-1015, Switz.). Journal of the American Chemical Society, 117(10), 2793-804 (English) 1995. CODEN: JACSAT. ISSN: 0002-7863. OTHER SOURCES: CASREACT 123:227878. Publisher: American Chemical Society.

AB The homologation of a pyrrole to a pyridine ring within the porphyrinogen skeleton was achieved with high selectivity, good yield, and controlled regiochem. and was scaled up to multiple gram quantities. The homologation of meso-octaethylporphyrinogen to meso-octaethyltris(pyrrole)-monopyridine was carried out by reacting carbon monoxide with Zr-C and Zr-H functionalities supported by the meso-octaethylporphyrinogen ligand [Et8N4H4]. The starting materials [$\eta^5\text{-}\eta^1\text{-}\eta^5\text{-}\eta^1\text{-Et8N4}$]Zr($\mu\text{-NaH}$)]₂ (2) and [$\eta^5\text{-}\eta^1\text{-}\eta^5\text{-}\eta^1\text{-Et8N4}$]Zr($\mu\text{-KH}$)]₂ (3) have been obtained by a direct addition of alkali hydrides to [$\eta^5\text{-}\eta^1\text{-}\eta^5\text{-}\eta^1\text{-Et8N4}$]Zr(THF)] (1) or via hydrozirconation reactions in the cases of [$\eta^5\text{-}\eta^1\text{-}\eta^1\text{-}\eta^1\text{-Et8N4}$]ZrCH₂CH₃}]₂($\mu\text{-K}$)₂] (6) and [$\eta^5\text{-}\eta^1\text{-}\eta^1\text{-}\eta^1\text{-Et8N4}$]ZrCH:CH₂}]₂($\mu\text{-K}$)₂] (7). The reaction of 3 with carbon monoxide led to the intermediate formation of an η^2 -formyl group possessing significant carbenium ion character, which was displayed in its addition to a pyrrole unit to give a pyridine ring in [$\eta^5\text{-}\eta^1\text{-}\eta^5\text{-}\eta^1\text{-Et8(C4H2N)3C5H3N}$]Zr:O}]₂($\mu\text{-K}$)₂] (4). The overall result is the formation of a novel macrocycle containing three pyrroles and one pyridine unit binding a zirconyl fragment derived from a complete cleavage of a C-O multiple bond. A straightforward hydrolysis of 4

with H₂O gave a high yield of the free macrocycle [Et₈(C₄H₂NH)₃(C₅H₃N)] (5). The carbonylation of 6 and 7 allowed the determination of the regiochem. of the homologation reaction which gave, upon hydrolysis of the corresponding zirconyl complex, the following free macrocycles [Et₈(C₄H₂NH)₃(3-RC₅H₂N)] [R = CH₂CH₃, 8; R = CH:CH₂, 9]. The intermediate η^2 -acyl homologates one of the pyrroles to a m-alkylpyridine ring. By this methodol. we are able to introduce functionalizable substituents into the pyridine ring, i.e., in 9. General procedures are reported for one-pot large-scale synthesis of free trispyrrole-monopyridine macrocycles. The reaction of [η^5 - η^1 - η^1 - η^1 -Et₈N₄)Nb-Me] (12) with carbon monoxide led to the oxoniobium(V) complex [{ η^5 - η^1 - η^1 - η^1 -Et₈(C₄H₂N)₃(p-MeC₅H₂N)}Nb:O] (13) due to the carbenium ion properties of the intermediate η^2 -acetyl derivative. Complex 13 contains the meso-octaethyltrispyrrole-monopyridine trianion derived from the homologation of one of the pyrrole rings of [Et₈N₄H₄] into p-methylpyridine. The formation of a para-substituted pyridine is ascribed to the η^3 bonding mode of one of the pyrrolyl anions. The homologation of the trispyrrole-monopyridine macrocycle [Et₈(C₄H₂NH)₃(C₅H₃N)] (7) to the bispyrrole-bispyridine macrocycle has been achieved using a sequence which involves the key hafnium derivative [η^5 - η^1 - η^5 - η^1 -Et₈(C₄H₂N)₃(C₅H₃N)}Hf-Me] (17). The reaction of 17 with carbon monoxide provides the homologation of a further pyrrolyl anion into m-methylpyridine, giving the cis-bispyridine-bispyrrole macrocycle binding the oxohafnium(IV) unit in [cis-Et₈(C₄H₂N)₂(C₅H₃N)(m-MeC₅H₂N)Hf:O] (18). The hydrolysis of 18 freed the ligand [Et₈(C₄H₂NH)₂(C₅H₃N)(m-MeC₅H₂N)] (19) which was characterized by an x-ray anal. Crystallog. details: compound 8 is triclinic, space group P₁hivn.1, a = 13.763(3) Å, b = 14.464(2) Å, c = 19.276(3) Å, α = 82.77(1)°, β = 89.71(2)°, γ = 76.52(1)°, Z = 2, and R = 0.045. Compound 13 is monoclinic, space group C2/c, a = 29.380(5) Å, b = 13.467(4) Å, c = 40.862(7) Å, α = γ = 90°, β = 107.55(2)°, Z = 16, and R = 0.047. Compound 17 is monoclinic, space group P2₁/n, a = 11.459(3) Å, b = 13.140(3) Å, c = 23.454(4) Å, α = γ = 90°, β = 102.23(3)°, Z = 4, and R = 0.026. Compound 19 is monoclinic, space group P2₁/n, a = 13.038(3) Å, b = 18.859(3) Å, c = 14.805(3) Å, α = γ = 90°, β = 102.80(2)°, Z = 4, and R = 0.057.

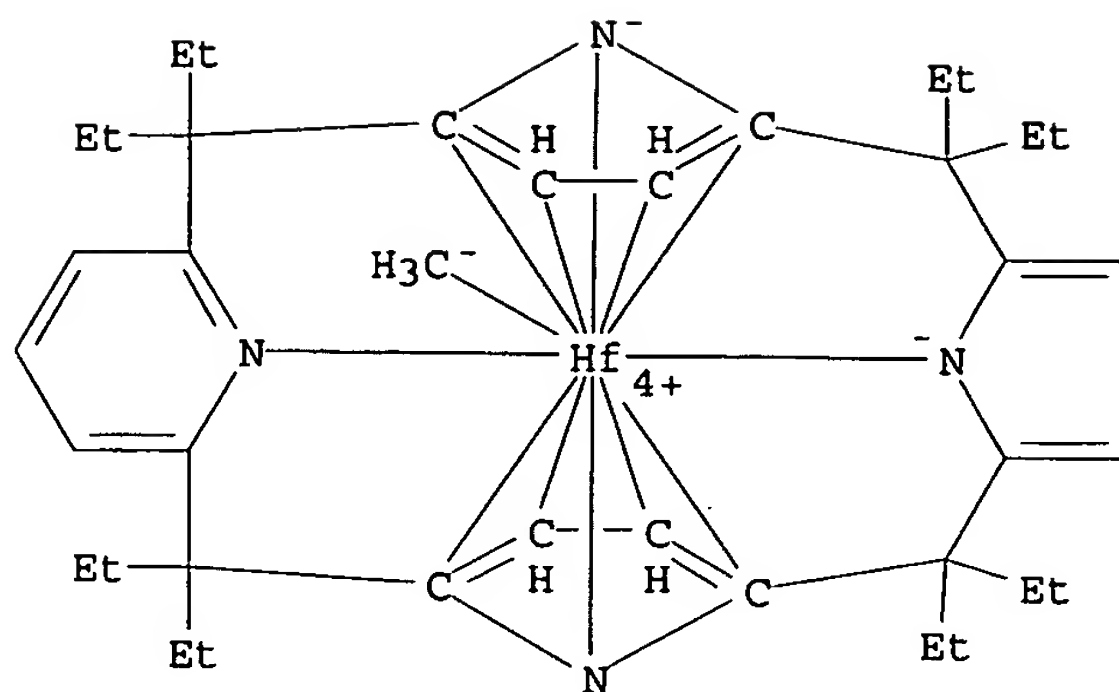
IT 168331-66-6P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(crystal and mol. structure; transition metal-assisted regioselective homologation of porphyrinogens with CO)

RN 168331-66-6 HCAPLUS

CN Hafnium, methyl[(3,4,5,6,13,14,15,16 η)-2,2,7,7,12,12,17,17-octaethyl-22,23,24,25-tetraazapentacyclo[16.3.1.13,6.18,11.113,16]pentacosa-1(22),3,5,8,10,13,15,18,20-nonaenato(3-)-N₂₂,N₂₃,N₂₄,N₂₅]-, stereoisomer (9CI) (CA INDEX NAME)



IT 149788-45-4P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
PREP (Preparation); RACT (Reactant or reagent)
(dimeric, crystal structure; transition metal-assisted
regioselective homologation of porphyrinogens with CO)

RN 149788-45-4 HCAPLUS

CN Zirconate(1-), [(3,4,5,6,13,14,15,16 η)-2,2,7,7,12,12,17,17,21-
nonaethyl-22,23,24,25-tetraazapentacyclo[16.3.1.13,6.18,11.113,16]pe
ntacosa-1(22),3,5,8,10,13,15,18,20-nonaenato(3-)-
N22,N,23,N24,N25]oxo-, potassium, stereoisomer (9CI) (CA INDEX
NAME)

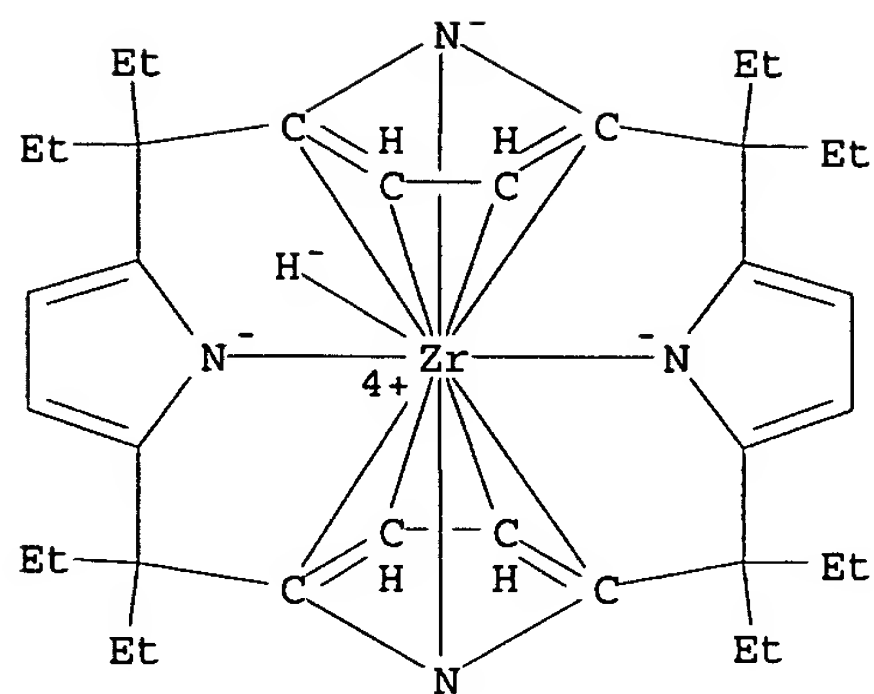
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 149788-43-2 168331-57-5

RL: RCT (Reactant); RACT (Reactant or reagent)
(dimeric; transition metal-assisted regioselective homologation
of porphyrinogens with CO)

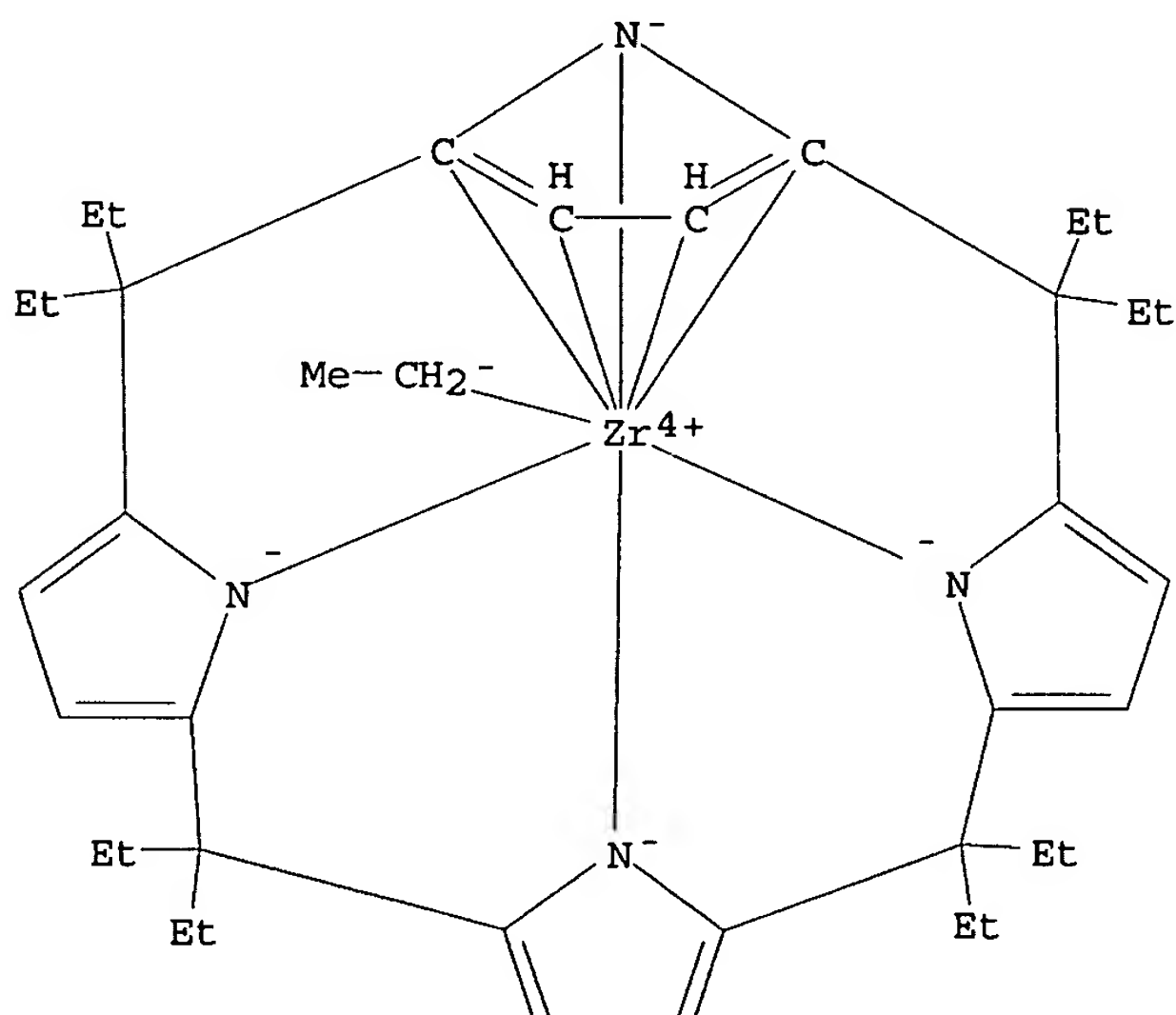
RN 149788-43-2 HCAPLUS

CN Zirconate(1-), hydro[(1,2,3,4,11,12,13,14 η)-
5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-
porphinato(2-)-N21,N22,N23,N24]-, potassium, stereoisomer (9CI) (CA
INDEX NAME)



RN 168331-57-5 HCAPLUS
 CN Zirconate(1-), ethyl[(1,2,3,4η)-5,5,10,10,15,15,20,20-octaethyl-
 5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24]-,
 potassium (9CI) (CA INDEX NAME)

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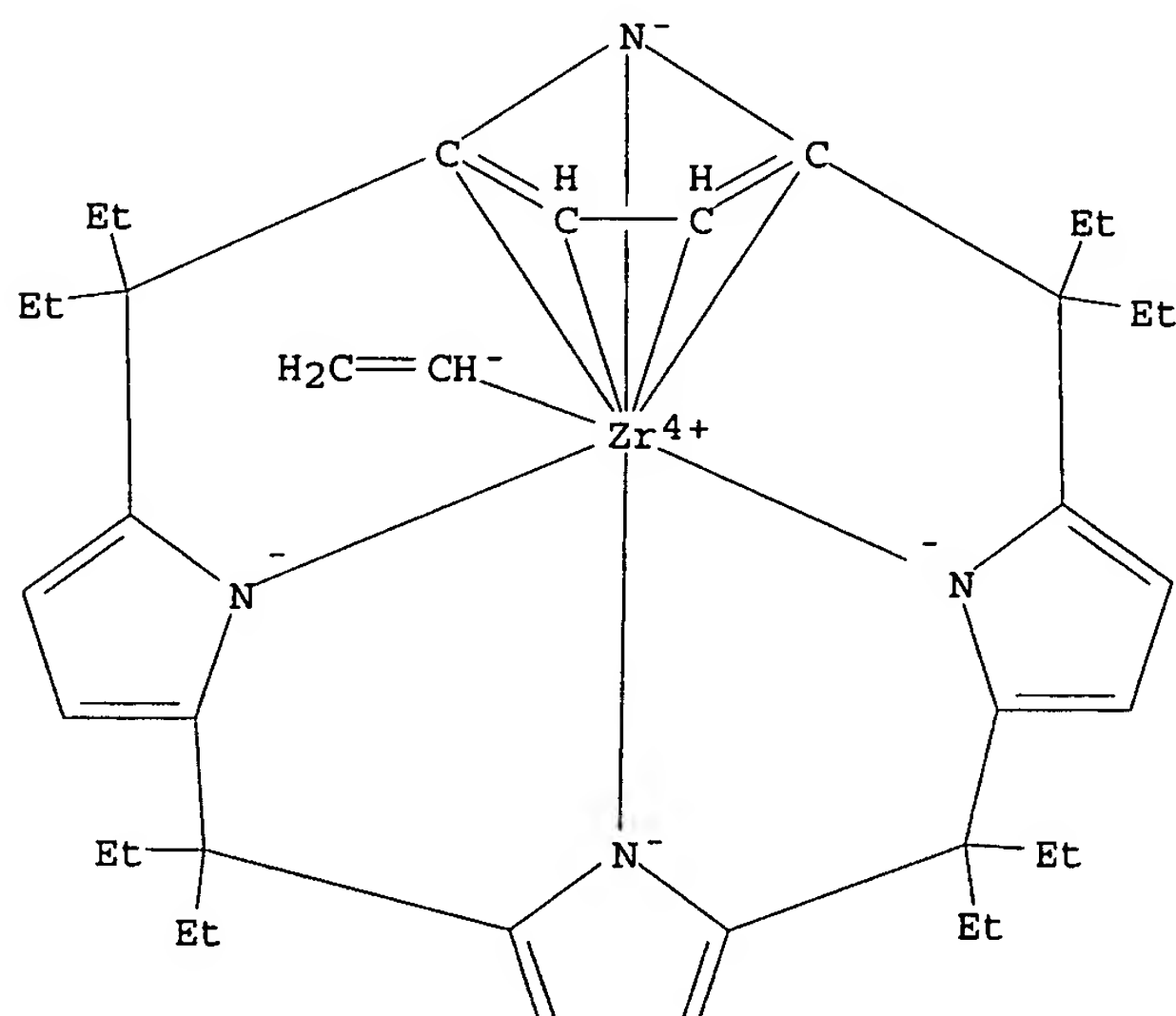


PAGE 2-A



IT 168331-58-6P 168331-59-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
 RACT (Reactant or reagent)
 (dimeric; transition metal-assisted regioselective homologation
 of porphyrinogens with CO)
 RN 168331-58-6 HCAPLUS
 CN Zirconate(1-), ethenyl[(1,2,3,4η)-5,5,10,10,15,15,20,20-
 octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-
 N21,N22,N23,N24]-, sodium, stereoisomer (9CI) (CA INDEX NAME)

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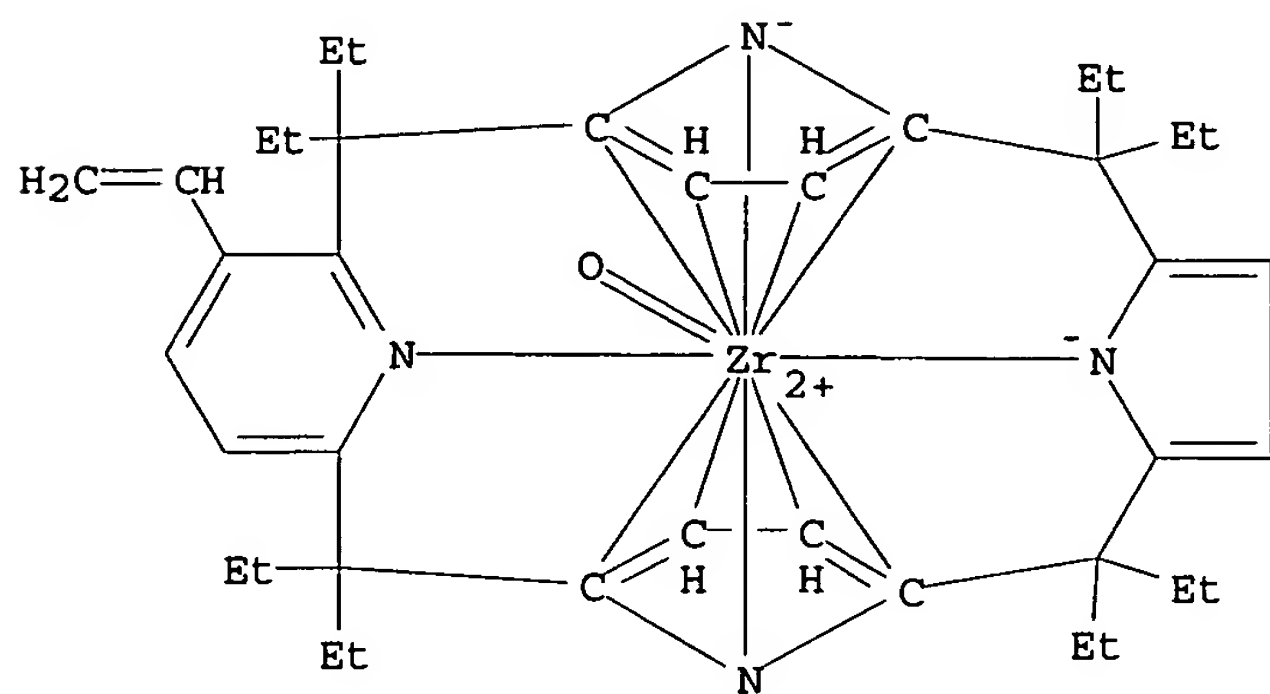


PAGE 2-A



RN 168331-59-7 HCAPLUS
 CN Zirconate(1-), [(3,4,5,6,13,14,15,16η)-19-ethenyl-
 2,2,7,7,12,12,17,17-octaethyl-22,23,24,25-

tetraazapentacyclo[16.3.1.13,6.18,11.113,16]pentacosa-
1(22),3,5,8,10,13,15,18,20-nonaenato(3-)-N22,N23,N24,N25]oxo-,
sodium, stereoisomer (9CI) (CA INDEX NAME)



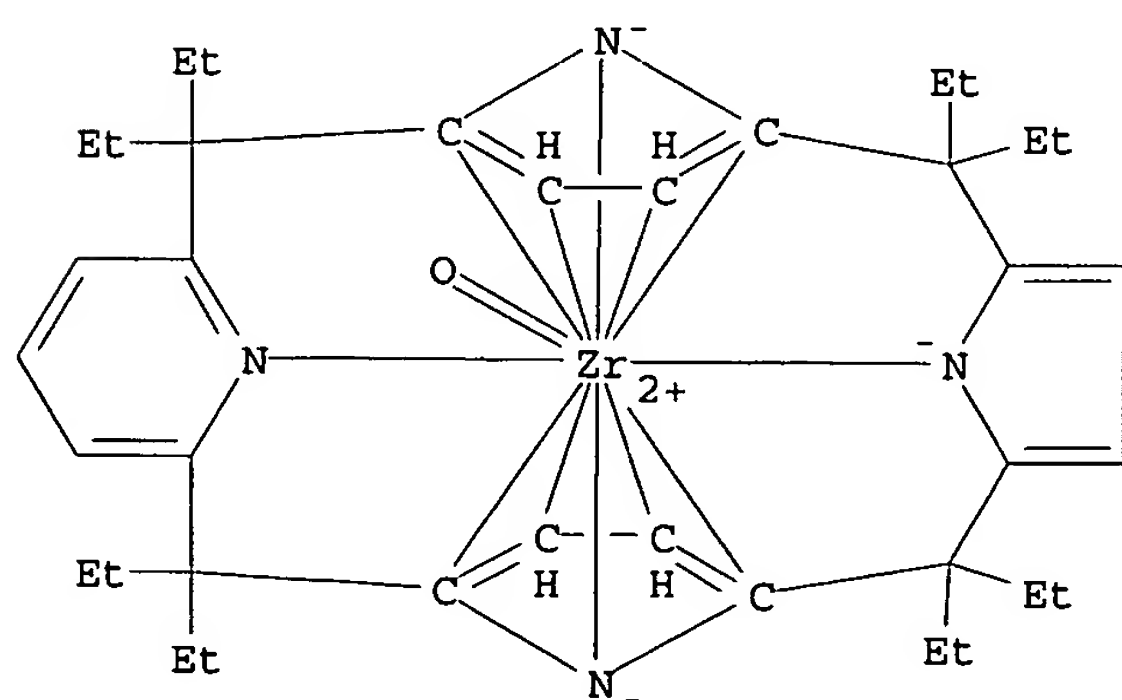
● Na⁺

IT 149788-44-3P

RL: SPN (Synthetic preparation); PREP (Preparation)
(dimeric; transition metal-assisted regioselective homologation
of porphyrinogens with CO)

RN 149788-44-3 HCAPLUS

CN Zirconate(1-), [(3,4,5,6,13,14,15,16η)-2,2,7,7,12,12,17,17-
octaethyl-22,23,24,25-tetraazapentacyclo[16.3.1.13,6.18,11.113,16]pe
ntacosa-1(22),3,5,8,10,13,15,18,20-nonaenato(3-)-
N22,N,23,N24,N25]oxo-, potassium, stereoisomer (9CI) (CA INDEX
NAME)



● K⁺

IT 168331-61-1P 168331-65-5P 168331-69-9P

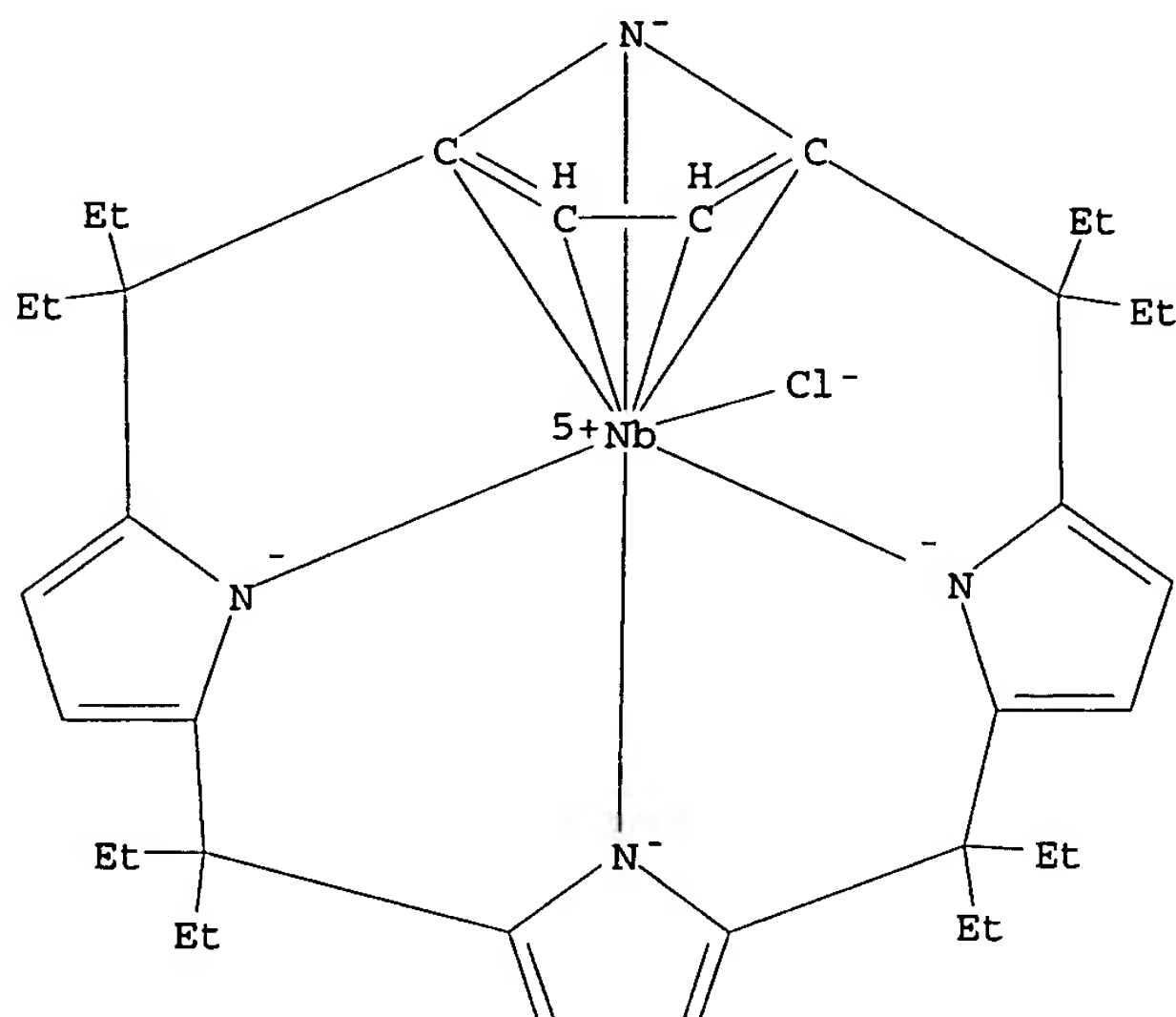
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
 RACT (Reactant or reagent)

(transition metal-assisted regioselective homologation of
 porphyrinogens with CO)

RN 168331-61-1 HCAPLUS

CN Niobium, chloro[(1,2,3,4-η)-5,5,10,10,15,15,20,20-octaethyl-
 5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24]-
 (9CI) (CA INDEX NAME)

PAGE 1-A

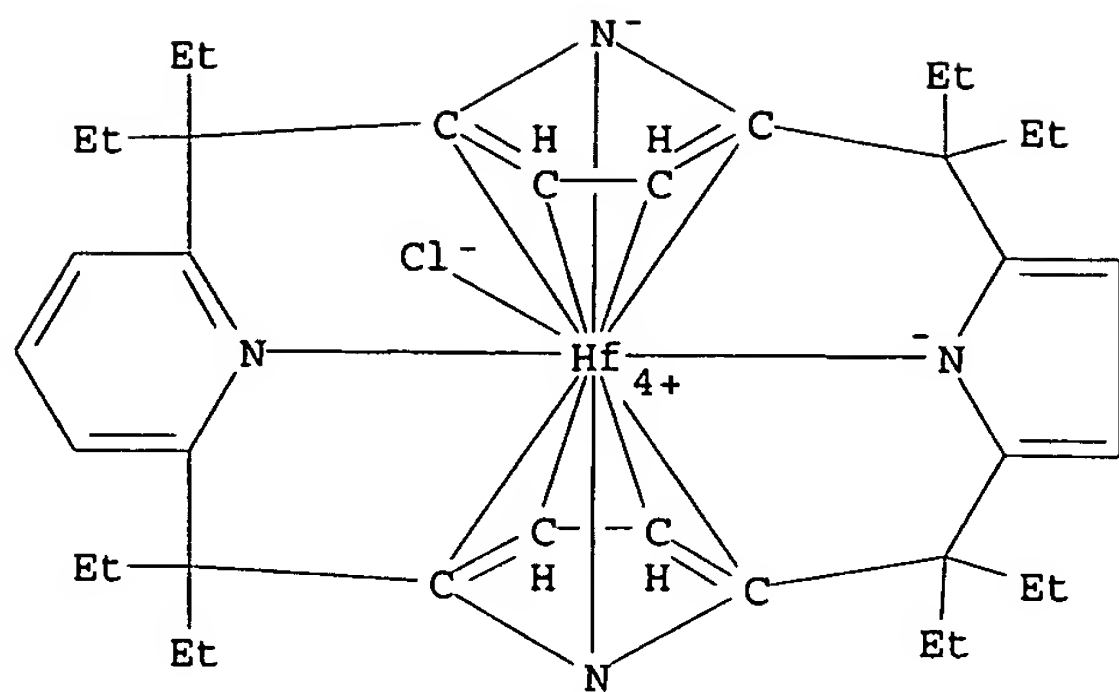


PAGE 2-A



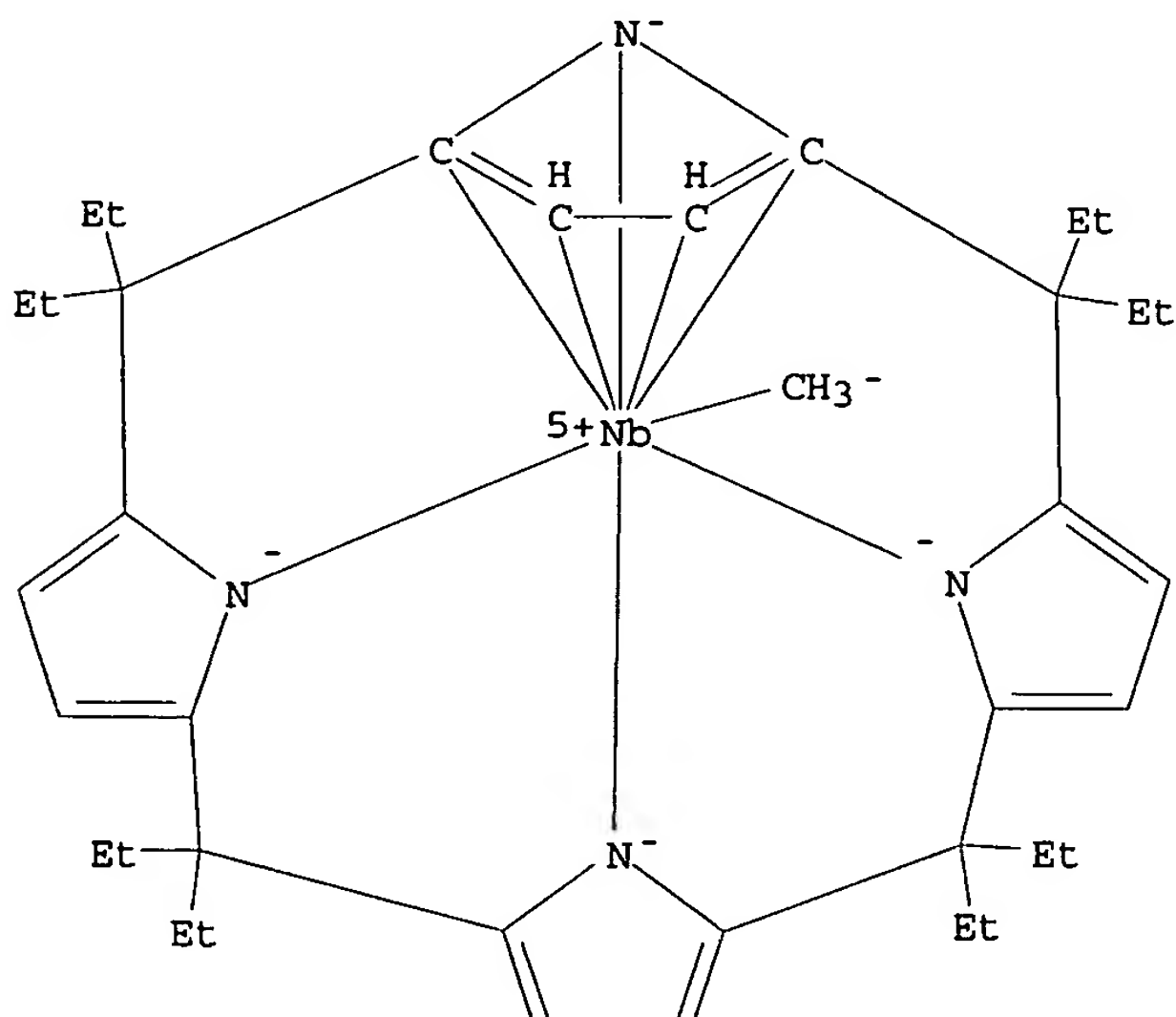
RN 168331-65-5 HCAPLUS

CN Hafnium, chloro[(3,4,5,6,13,14,15,16η)-2,2,7,7,12,12,17,17-
 octaethyl-22,23,24,25-tetraazapentacyclo[16.3.1.13,6.18,11.113,16]pe
 ntacosa-1(22),3,5,8,10,13,15,18,20-nonaenato(3-)-N22,N23,N24,N25]-
 (9CI) (CA INDEX NAME)



RN 168331-69-9 HCAPLUS
 CN Niobium, methyl[(1,2,3,4-η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24]-, stereoisomer (9CI) (CA INDEX NAME)

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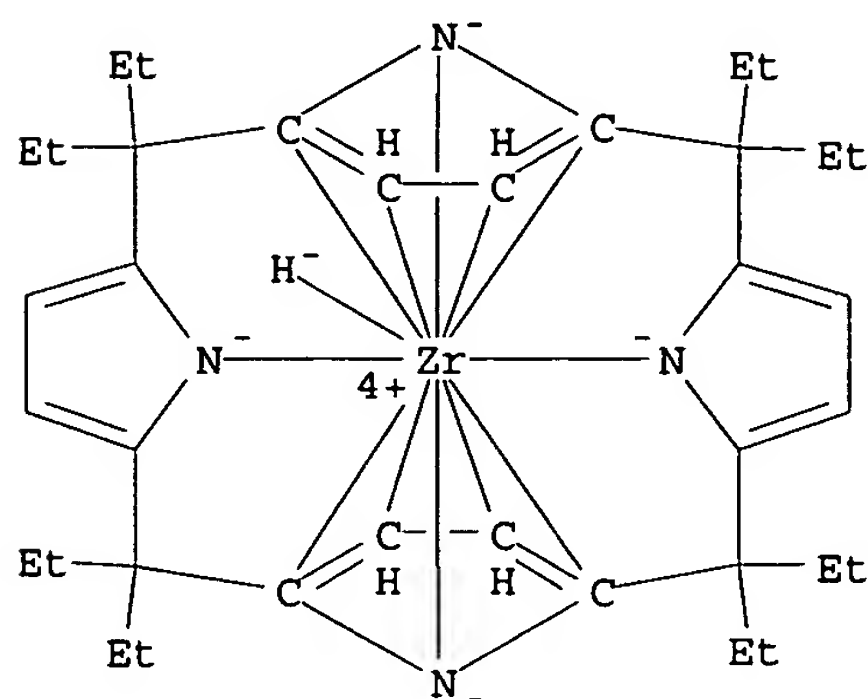


PAGE 2-A



IT 148420-66-0P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (transition metal-assisted regioselective homologation of
 porphyrinogens with CO)
 RN 148420-66-0 HCAPLUS

CN Zirconate(1-), hydro[(1,2,3,4,11,12,13,14 η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(2-)- κ N21, κ N22, κ N23, κ N24]-, sodium, stereoisomer (9CI) (CA INDEX NAME)



● Na⁺

CC 26-7 (Biomolecules and Their Synthetic Analogs)
Section cross-reference(s): 29, 75

IT 168331-66-6P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
PREP (Preparation); RACT (Reactant or reagent)
(crystal and mol. structure; transition metal-assisted
regioselective homologation of porphyrinogens with CO)

IT 149788-45-4P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
PREP (Preparation); RACT (Reactant or reagent)
(dimeric, crystal structure; transition metal-assisted
regioselective homologation of porphyrinogens with CO)

IT 149788-43-2 168331-57-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(dimeric; transition metal-assisted regioselective homologation
of porphyrinogens with CO)

IT 168331-58-6P 168331-59-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
RACT (Reactant or reagent)
(dimeric; transition metal-assisted regioselective homologation
of porphyrinogens with CO)

IT 149788-44-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(dimeric; transition metal-assisted regioselective homologation
of porphyrinogens with CO)

IT 149624-66-8P 168331-61-1P 168331-64-4P
168331-65-5P 168331-69-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
RACT (Reactant or reagent)
(transition metal-assisted regioselective homologation of
porphyrinogens with CO)

IT 148420-66-0P 149624-67-9P 168331-60-0P 168331-63-3P
168331-67-7P
RL: SPN (Synthetic preparation); PREP (Preparation)

(transition metal-assisted regioselective homologation of porphyrinogens with CO)

L60 ANSWER 15 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

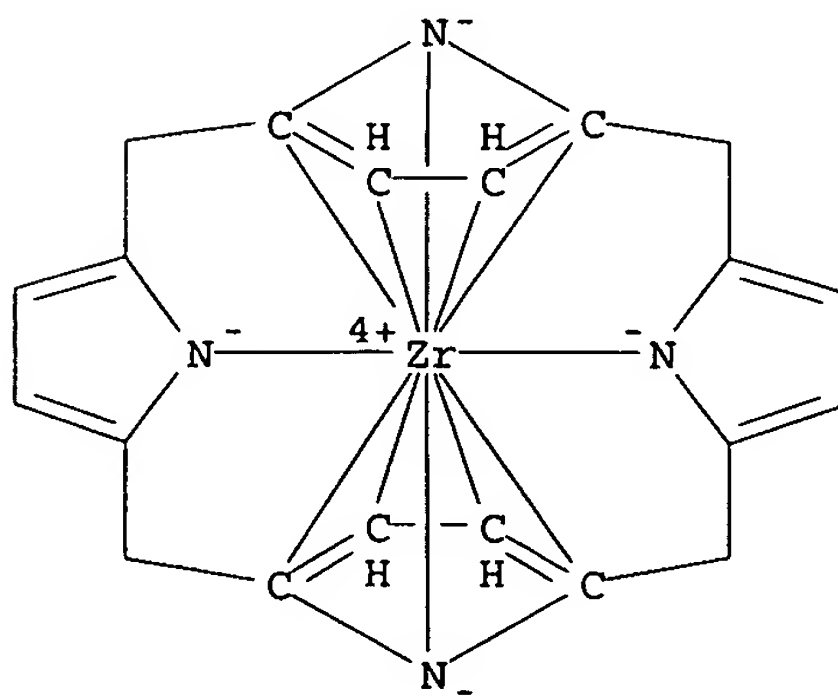
1994:217999 Document No. 120:217999 The σ - and π -bonding modes of a tetraanionic porphyrinogen ligand in zirconium(IV) complexes: a theoretical investigation. Rosa, Angela; Ricciardi, Giampaolo; Rosi, Marzio; Sgamellotti, Antonio; Floriani, Carlo (Dip. Chim., Univ. Basilicata, Potenza, 85100, Italy). Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (24), 3759-66 (English) 1993. CODEN: JCOTBI. ISSN: 0300-9246.

AB The bonding modes of the porphyrinogen ligand L4- (H4L = 5,10,15,20,22,24-hexahydroporphyrin) with the metal ion Zr⁴⁺ are analyzed in detail for the limiting coordinations $\eta^5, \sigma, \eta^5, \sigma$ and $\sigma, \sigma, \sigma, \sigma$. In both coordination modes σ bonding is by far the most dominant, mainly due to strong charge donation from the pyrrolic nitrogen lone pairs into the empty $4d_{x^2-y^2}$ and $4d_{xz}$, with addnl. effects from donation into the $4d_{z^2}$ and $5s$ orbitals. The π bond, resulting from donation from occupied pyrrolyl π orbitals into the metal $4d_{xy}$ and $4d_{yz}$ orbitals is significant for $\eta^5, \sigma, \eta^5, \sigma$ - but rather weak for $\sigma, \sigma, \sigma, \sigma$ -coordination due to the diminished donation into the $4d_{xy}$ orbital. The total orbital interaction contribution (the covalent component) is about one third of the ionic component of the bond, the latter being identified as the sum of the Pauli repulsion and the attractive electrostatic interaction between L4- and Zr⁴⁺. The ionic contribution is about the same in the two configurations, but the covalent component of the bond decreases by ca. 3 eV for $\sigma: \sigma: \sigma: \sigma$ coordination due mostly to a weaker π -bond interaction. The $\eta^5, \sigma, \eta^5, \sigma$ complex is only 2.1 eV more stable, indicating that the interconversion between the two coordination modes is a relatively easy process. The most stable coordination mode is preserved after interaction of the substrate with the Lewis bases THF or H⁻.

IT 154202-80-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(metal-ligand bonding in, MO calcns. in relation to)

RN 154202-80-9 HCAPLUS

CN Zirconium, [(1,2,3,4,11,12,13,14 η)-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24] - (9CI) (CA INDEX NAME)

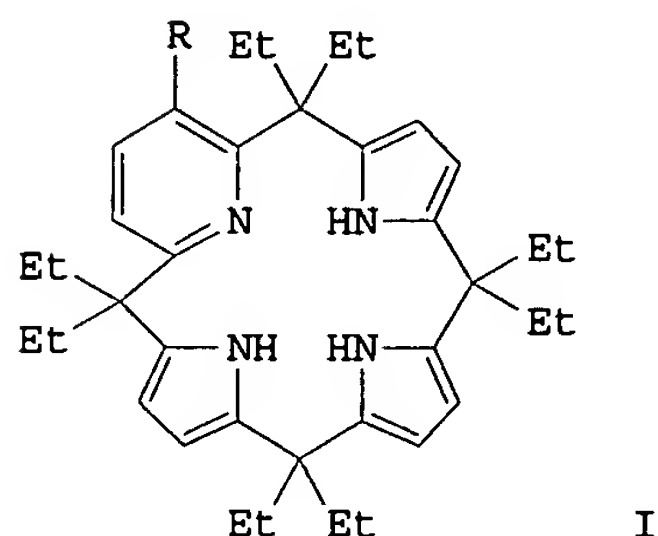


CC 29-10 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22, 65

IT 154202-80-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(metal-ligand bonding in, MO calcns. in relation to)

L60 ANSWER 16 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
1993:538958 Document No. 119:138958 Zirconium-assisted homologation of pyrrole to pyridine in the conversion of meso-octaethylporphyrinogen into a meso-octaethyltrispyrrolemonopyridine macrocycle with carbon monoxide and the structure of the first zirconyl complex. Jacoby, Denis; Floriani, Carlo; Chiesi-Villa, Angiola; Rizzoli, Corrado (Sect. Chim., Univ. Lausanne, Lausanne, CH-1005, Switz.). Journal of the American Chemical Society, 115(15), 7025-6 (English) 1993. CODEN: JACSAT. ISSN: 0002-7863. OTHER SOURCES: CASREACT 119:138958.

GI



AB Meso-octaethylporphyrinogen has been homologated to the meso-octaethyltrispyrrolemonopyridine macrocycle I (R = H) via metalation with LiBu, reaction with ZrCl₄ to give [(η⁵-η¹-η⁵-η¹-Et₈N₄)Zr(THF)] (II), reaction of II with KH to [(η⁵-η¹-η⁵-η¹-Et₈(C₄H₂N)₄)Zr]2μ-KH)2 (III), reaction of III with CO to give [η⁵-η¹-η⁵-η¹-Et₈(C₄H₂N)₃(C₅H₃N)Zr:O]2μ-K)2] which was hydrolyzed to I (R = H). III inserts C₂H₄ to produce the Et derivative, which gives, upon exposure to CO, [η⁵-η¹-η⁵-η¹-Et₈(C₄H₂N)₃(3-EtC₅H₂N)Zr:O]2μ-K)2, which, on hydrolysis, gave I (R = Et).

IT 149788-45-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(dimer, preparation and hydrolysis)

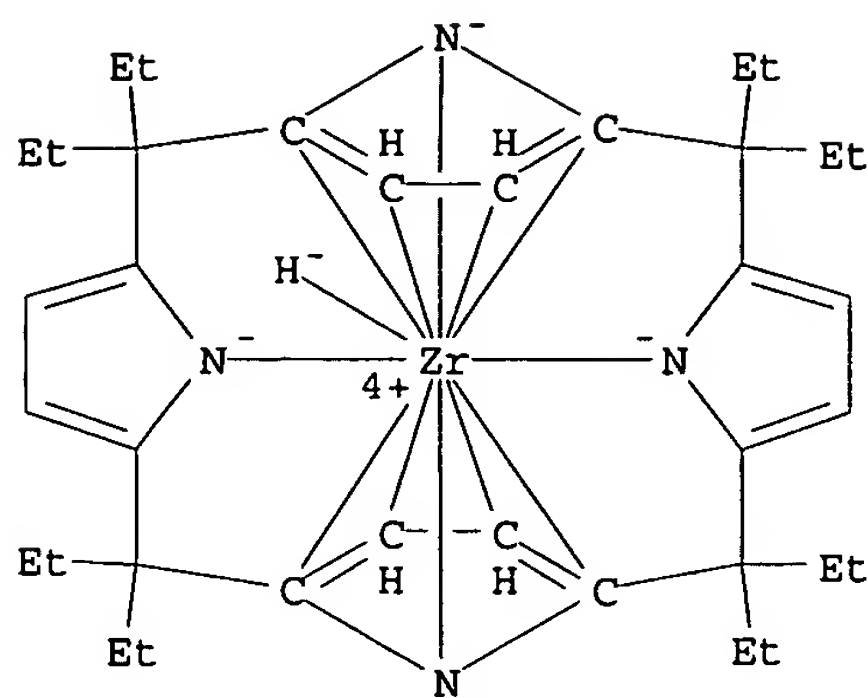
RN 149788-45-4 HCAPLUS
CN Zirconate(1-), [(3,4,5,6,13,14,15,16η)-2,2,7,7,12,12,17,17,21-nonaethyl-22,23,24,25-tetraazapentacyclo[16.3.1.13,6.18,11.113,16]pentacosa-1(22),3,5,8,10,13,15,18,20-nonaenato(3-)-N22,N,23,N24,N25]oxo-, potassium, stereoisomer (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 149788-43-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(dimer, preparation and reaction with carbon monoxide)

RN 149788-43-2 HCAPLUS
CN Zirconate(1-), hydro[(1,2,3,4,11,12,13,14η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(2-)-N21,N22,N23,N24]-, potassium, stereoisomer (9CI) (CA

INDEX NAME)

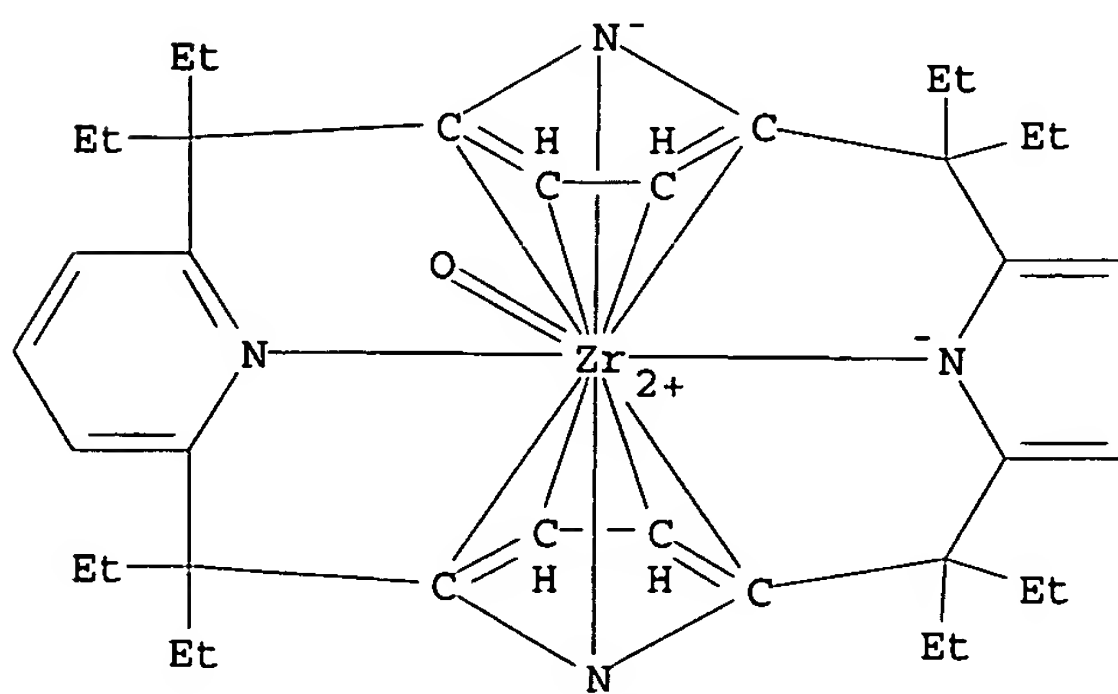
● K⁺

IT 149788-44-3P

RL: SPN (Synthetic preparation); PREP (Preparation)
 (dimer, preparation, hydrolysis, and crystal structure)

RN 149788-44-3 HCAPLUS

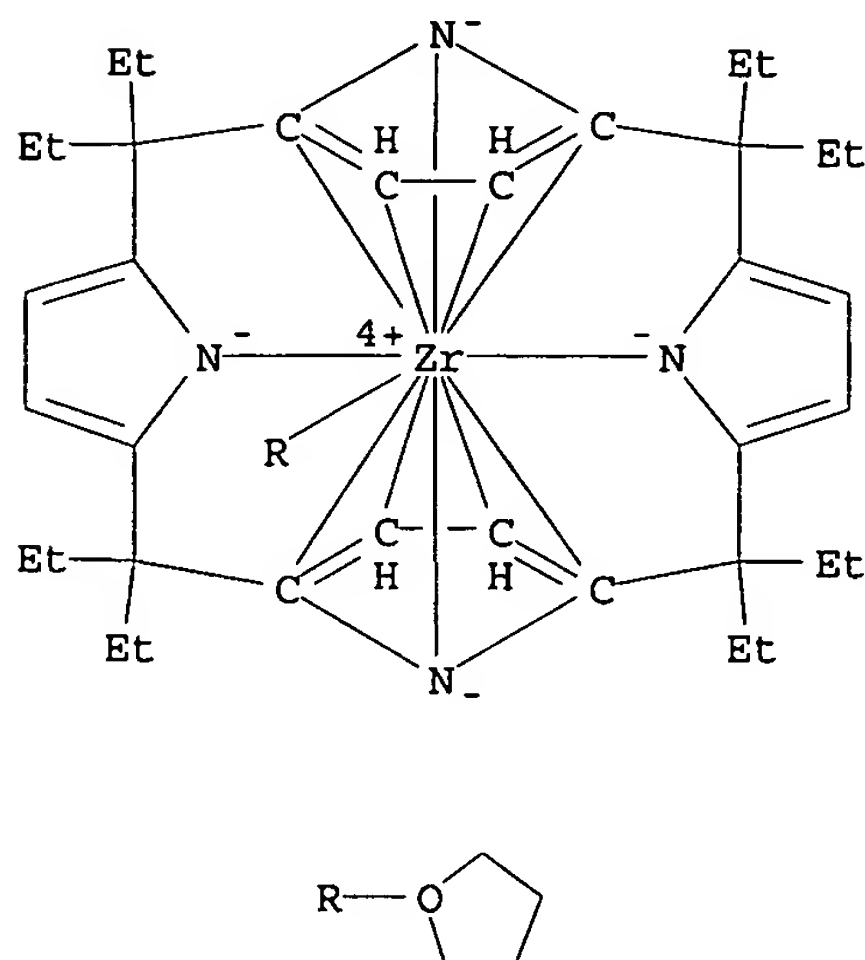
CN Zirconate(1-), [(3,4,5,6,13,14,15,16 η)-2,2,7,7,12,12,17,17-octaethyl-22,23,24,25-tetraazapentacyclo[16.3.1.13,6.18,11.113,16]pentacosa-1(22),3,5,8,10,13,15,18,20-nonaenato(3-)-N22,N,23,N24,N25]oxo-, potassium, stereoisomer (9CI) (CA INDEX NAME)

● K⁺

IT 148420-64-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
 RACT (Reactant or reagent)
 (preparation and reaction with hydride)

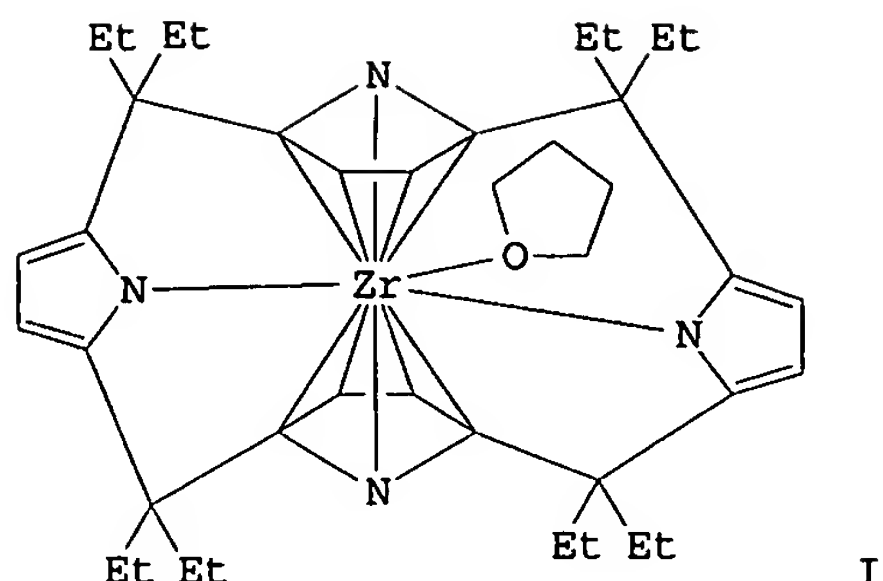
RN 148420-64-8 HCAPLUS
 CN Zirconium, [(1,2,3,4,11,12,13,14 η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)- κ N21, κ N22, κ N23, κ N24] (tetrahydrofuran)-, stereoisomer (9CI) (CA INDEX NAME)



CC 26-7 (Biomolecules and Their Synthetic Analogs)
 Section cross-reference(s): 75, 78
 IT 149788-45-4P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (dimer, preparation and hydrolysis)
 IT 149788-43-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
 RACT (Reactant or reagent)
 (dimer, preparation and reaction with carbon monoxide)
 IT 149788-44-3P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (dimer, preparation, hydrolysis, and crystal structure)
 IT 148420-64-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
 RACT (Reactant or reagent)
 (preparation and reaction with hydride)

L60 ANSWER 17 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN
 1993:449508 Document No. 119:49508 Zirconium meso-octaethylporphyrinogen as a carrier for sodium hydride in toluene: zirconium-sodium bimetallic hydride and alkyls. Jacoby, Denis; Floriani, Carlo; Chiesi-Villa, Angiola; Rizzoli, Corrado (Sec. Chim., Univ. Lausanne, Lausanne, CH-1005, Switz.). Journal of the American Chemical Society, 115(9), 3595-602 (English) 1993. CODEN: JACSAT. ISSN: 0002-7863. OTHER SOURCES: CASREACT 119:49508.

GI



AB The reaction of the tetralithium meso-octaethylprophyrinogen $\text{Et}_8\text{N}_4\text{Li}_4(\text{THF})_4$ with $\text{ZrCl}_4(\text{THF})_2$ gave 95% $[\eta^5\text{-}\eta^1\text{-}\eta^5\text{-}\eta^1\text{-Et}_8\text{N}_4]\text{Zr}(\text{THF})_2$ (3, shown as structure I), containing two η^5 and two η^1 pyrrolyl anions bonded to zirconium. Such a complex acts as a bifunctional acid-base system able to dissolve ionic salts in their monomeric or dimeric form in hydrocarbon solution. The reaction of 3 with NaH in toluene led to the complexation of NaH via the interaction of the hydride with the Lewis acid Zr and the η^5 complexation of Na by the pyrrolyl anions in $[[\eta^5\text{-}\eta^1\text{-}\eta^1\text{-}\eta^1\text{-Et}_8\text{N}_4]\text{Zr}]_2(\mu\text{-NaH})_2$ (4). Complex 4 reacts with terminal olefins in toluene by inserting the C:C double bond in the Zr-H functionality and so forming, in the case of ethylene, $[[\eta^5\text{-}\eta^1\text{-}\eta^1\text{-}\eta^1\text{-Et}_8\text{N}_4]\text{Zr}(\text{Et})]_2(\mu\text{-Na})_2$ (5) and, in the case of 1-hexene $[[\eta^5\text{-}\eta^1\text{-}\eta^1\text{-}\eta^1\text{-Et}_8\text{N}_4]\text{Zr}(\text{CH}_2(\text{CH}_2)_4\text{CH}_3)]_2(\mu\text{-Na})_2$ (6). Similarly, 4 adds to $\text{PhC}\equiv\text{CPh}$, which leads to the corresponding vinyl complex $[[\eta^5\text{-}\eta^1\text{-}\eta^1\text{-}\eta^1\text{-Et}_8\text{N}_4]\text{Zr}\text{-trans}\text{-(CH:CHPh)}]_2$ (7). The dimeric structure of 4 remains intact after the reactions giving 5-7; however, in these products, major differences in the Na-porphyrinogen interactions are seen. The reaction of 4 with C_2H_4 in THF gave a Zr-H porphyrinogen monomeric species identical to that formed from dissolving 5 in THF, $[[\eta^5\text{-}\eta^1\text{-}\eta^1\text{-}\eta^1\text{-Et}_8\text{N}_4]\text{Zr}(\text{Et})][\text{Na}(\text{THF})_2]$ (8). The structures of 3, 4, 5, 7, and 8 were determined by x-ray crystallography.

IT 148420-67-1P 148420-70-6P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and crystal and mol. structure of)

RN 148420-67-1 HCAPLUS

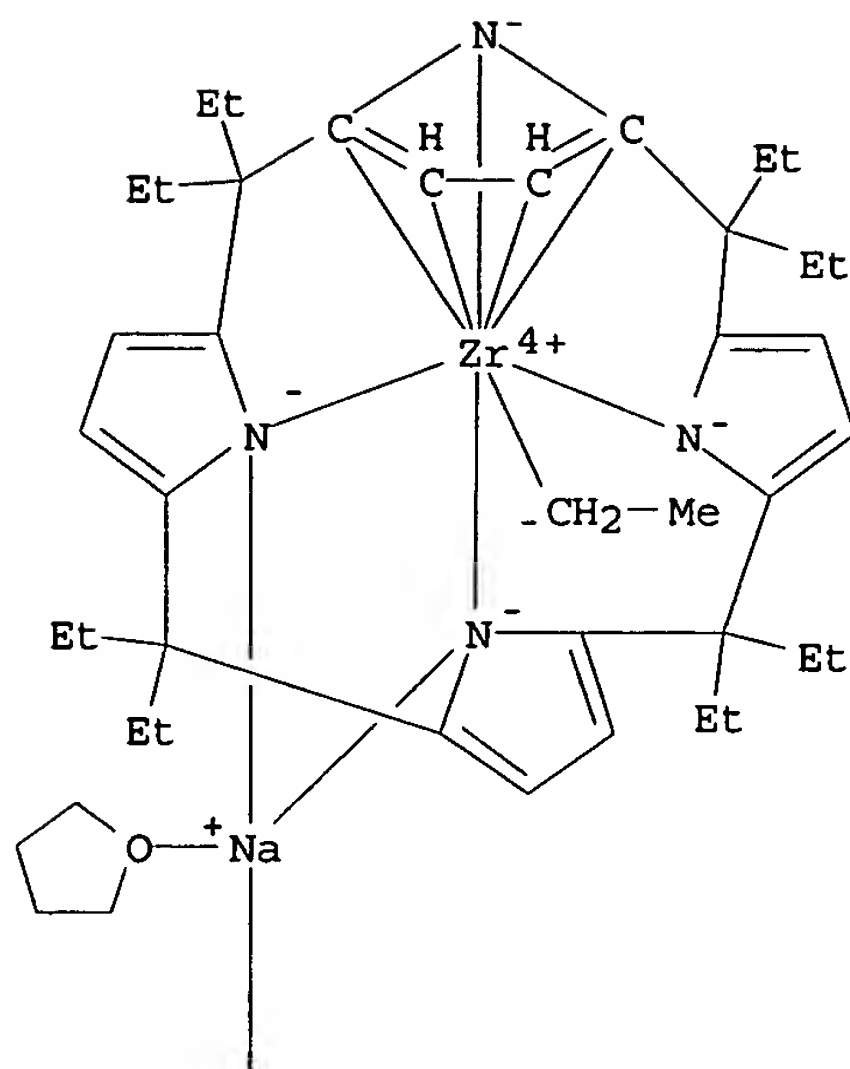
CN Sodium, bis(ethylzirconium)bis- μ^3 -[(1,2,3,4,11,12,13,14- η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24:N22:N24]]di-, stereoisomer (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

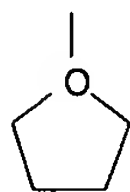
RN 148420-70-6 HCAPLUS

CN Sodium, $[\mu\text{-}[(1,2,3,4\text{-}\eta)\text{-}5,5,10,10,15,15,20,20\text{-octaethyl-}5,10,15,20,22,24\text{-hexahydro-}21\text{H},23\text{H-porphinato}(4\text{-})\text{-N21,N22,N23,N24:N22,N23}]]\text{bis(tetrahydrofuran)(zirconium)-, stereoisomer (9CI) (CA INDEX NAME)}$

PAGE 1-A



PAGE 2-A



IT 148420-69-3P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP
 (Preparation)
 (preparation and crystal structure of)
 RN 148420-69-3 HCAPLUS
 CN Sodium, bis[μ3-[(1,2,3,4,11,12,13,14-η)-5,5,10,10,15,15,20,20-
 octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-
 N21,N22,N23,N24:N22:N24]]bis[(2-phenylethenyl)zirconium]di-,
 stereoisomer, compd. with methylbenzene (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 148420-68-2

CMF C88 H110 N8 Na2 Zr2

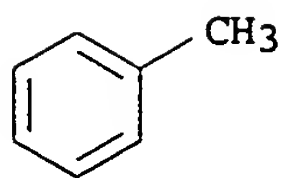
CCI CCS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

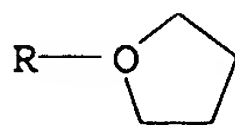
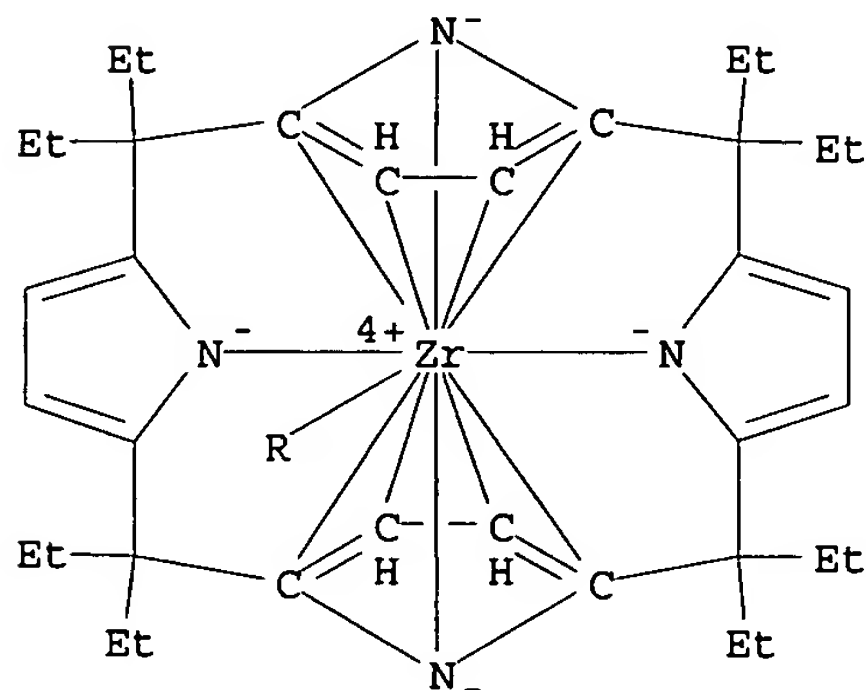
CM 2

CRN 108-88-3

CMF C7 H8



IT 148420-64-8P 148420-68-2P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP
 (Preparation)
 (preparation and mol. structure of)
 RN 148420-64-8 HCAPLUS
 CN Zirconium, [(1,2,3,4,11,12,13,14 η)-5,5,10,10,15,15,20,20-
 octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-
 κ N21, κ N22, κ N23, κ N24] (tetrahydrofuran)-,
 stereoisomer (9CI) (CA INDEX NAME)



RN 148420-68-2 HCAPLUS
 CN Sodium, bis[μ 3-[(1,2,3,4,11,12,13,14 η)-5,5,10,10,15,15,20,20-
 octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-
 N21,N22,N23,N24:N22:N24]]bis[(2-phenylethenyl)zirconium]di-,
 stereoisomer (9CI) (CA INDEX NAME)

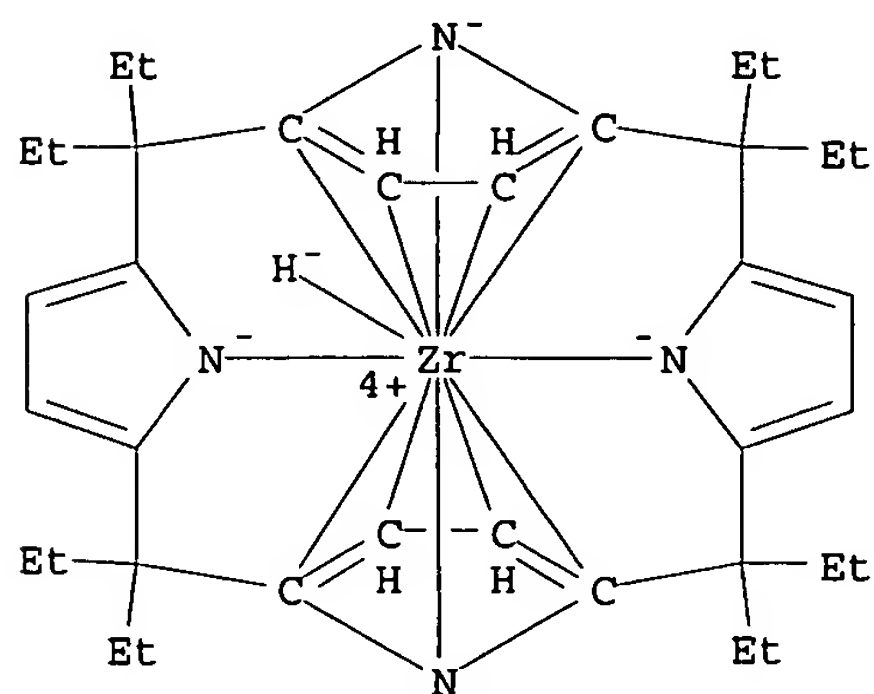
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 148573-64-2P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
 RN 148573-64-2 HCAPLUS
 CN Sodium, bis(hexylzirconium)bis[μ 3-[(1,2,3,4 η)-
 5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-
 porphinato(4-)-N21,N22,N23,N24:N22,N23:N24]]di-, stereoisomer (9CI)
 (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 148420-66-0P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation, crystal and mol. structure, and reaction of, with
 alkenes)

RN 148420-66-0 HCAPLUS
 CN Zirconate(1-), hydro[(1,2,3,4,11,12,13,14 η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(2-)- κ N21, κ N22, κ N23, κ N24]-, sodium, stereoisomer (9CI) (CA INDEX NAME)

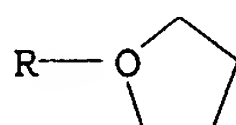
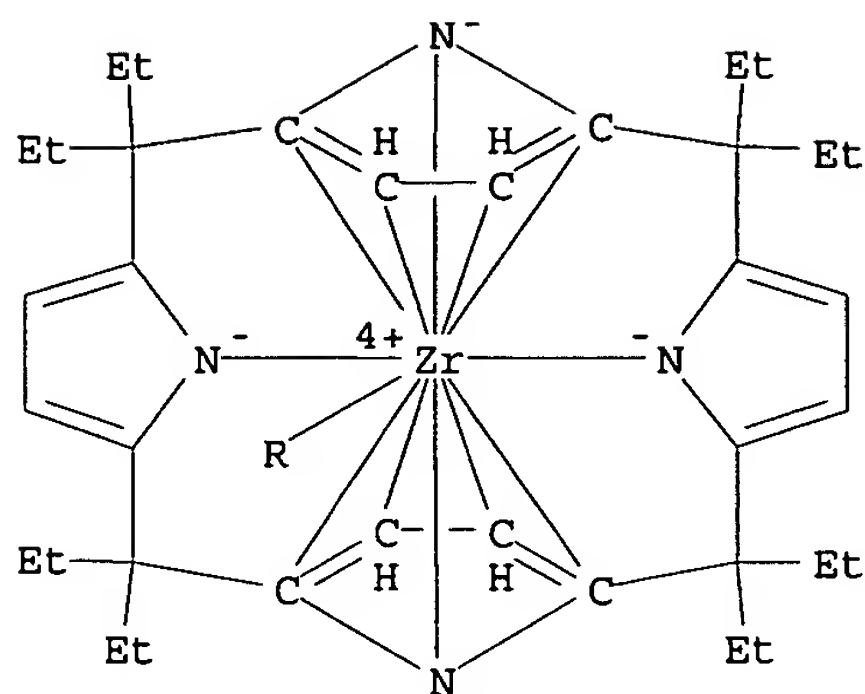


● Na⁺

IT 148420-65-9P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation, crystal structure, and reaction of, with sodium hydride)
 RN 148420-65-9 HCAPLUS
 CN Zirconium, [(1,2,3,4,11,12,13,14 η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24](tetrahydrofuran)-, stereoisomer, compd. with tetrahydrofuran (1:1) (9CI) (CA INDEX NAME)

CM 1

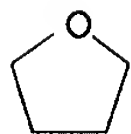
CRN 148420-64-8
 CMF C40 H56 N4 O Zr
 CCI CCS



CM 2

CRN 109-99-9

CMF C4 H8 O

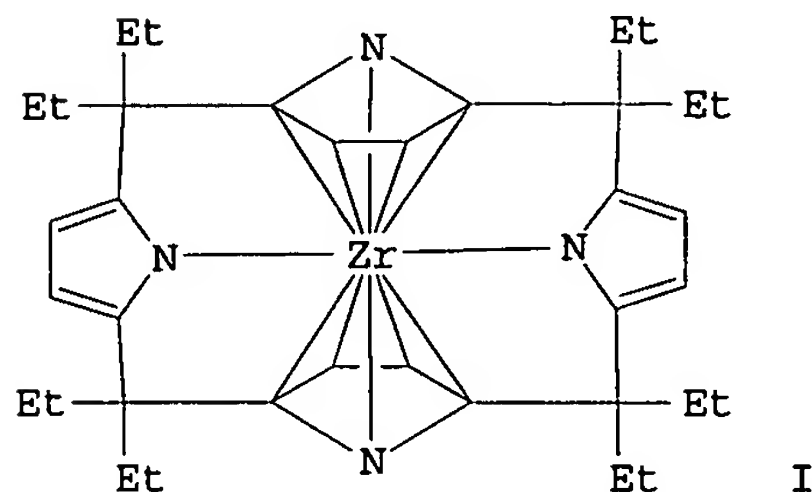


- CC 29-10 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75
- IT **148420-67-1P 148420-70-6P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal and mol. structure of)
- IT **148420-69-3P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)
- IT **148420-64-8P 148420-68-2P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and mol. structure of)
- IT **148573-64-2P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
- IT **148420-66-0P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation, crystal and mol. structure, and reaction of, with alkenes)
- IT **148420-65-9P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation, crystal structure, and reaction of, with sodium hydride)

L60 ANSWER 18 OF 18 HCAPLUS COPYRIGHT 2005 ACS on STN

1991:492478 Document No. 115:92478 The π and σ bonding modes of meso-octaethylporphyrinogen to transition metals: the x-ray structure of a meso-octaethylporphyrinogen-zirconium(IV) complex and of the parent meso-octaethylporphyrinogen ligand. Jacoby, Denis; Floriani, Carlo; Chiesi-Villa, Angiola; Rizzoli, Corrado (Sect. Chim., Univ. Lausanne, Lausanne, CH-1005, Switz.). Journal of the Chemical Society, Chemical Communications (11), 790-2 (English) 1991. CODEN: JCCCAT. ISSN: 0022-4936.

GI



AB The meso-octaethylporphyrinogen tetraanion provides σ and π binding pyrrolyl anions to electron poor transition metals, as shown in the crystal structure of the meso-octaethylporphyrinogen-zirconium(IV) complex (I) containing two π and two σ metal-bonded pyrrolyl anions.

IT 136396-52-6P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

RN 136396-52-6 HCAPLUS

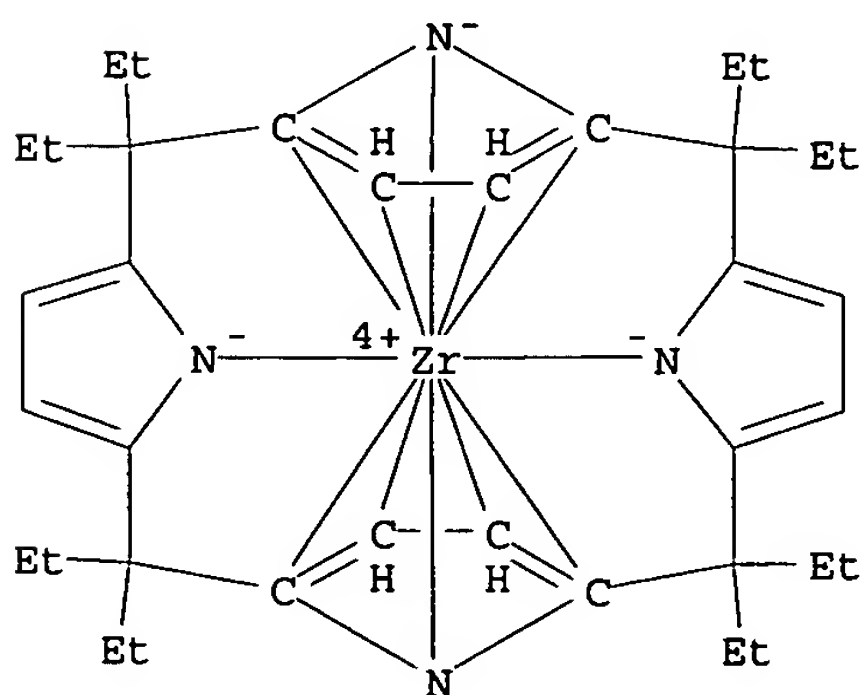
CN Zirconium, [(1,2,3,4,11,12,13,14,21,23 η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N22,N24]-, compd. with tetrahydrofuran (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 135421-42-0

CMF C36 H48 N4 Zr

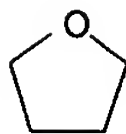
CCI CCS



CM 2

CRN 109-99-9

CMF C4 H8 O

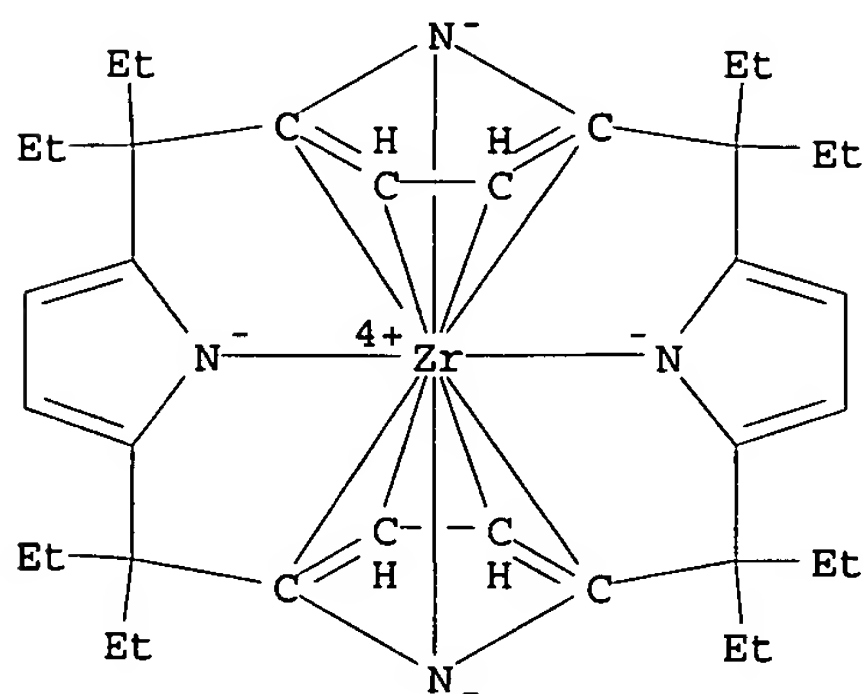


IT 135421-42-0P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and mol. structure of)

RN 135421-42-0 HCAPLUS

CN Zirconium, [(1,2,3,4,11,12,13,14 η)-5,5,10,10,15,15,20,20-octaethyl-5,10,15,20,22,24-hexahydro-21H,23H-porphinato(4-)-N21,N22,N23,N24]- (9CI) (CA INDEX NAME)CC 29-10 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75

IT 136396-52-6P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and crystal structure of)

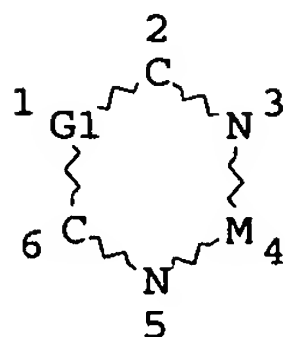
IT 135421-42-0P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and mol. structure of)

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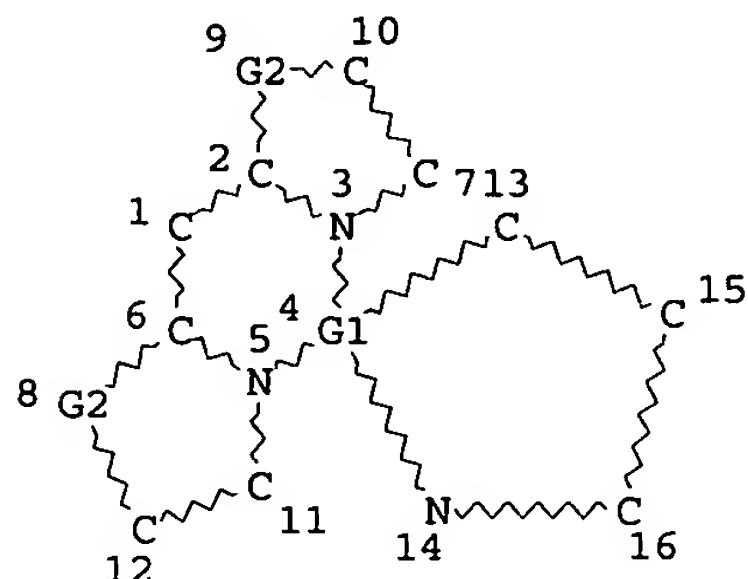
L3 STR



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 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE
 L7 SCR 1921 OR 1931 OR 1964
 L9 140934 SEA FILE=REGISTRY SSS FUL L3 AND L7
 L61 STR



VAR G1=IR/PT/RE/RU
 VAR G2=C/N/O/S
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 MLEVEL IS CLASS AT 10 11 12
 DEFAULT ECLEVEL IS LIMITED
 ECOUNT IS UNLIMITED AT 10 11 12

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 16

STEREO ATTRIBUTES: NONE
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 L64 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L63

=> d l64 1 cbib abs hitstr hitind

L64 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2005 ACS on STN
 2004:293206 Document No. 140:329330 organic electroluminescent devices
 containing transition metal complex. Igarashi, Tatsuya; Watanabe,
 Kohsuke (Fuji Photo Film Co., Ltd., Japan). U.S. Pat. Appl. Publ.
 US 2004065544 A1 20040408, 17 pp. (English). CODEN: USXXCO.
 APPLICATION: US 2003-670005 20030925. PRIORITY: JP 2002-287390
 20020930.

GI

(Application)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Organic electroluminescent devices are described described which

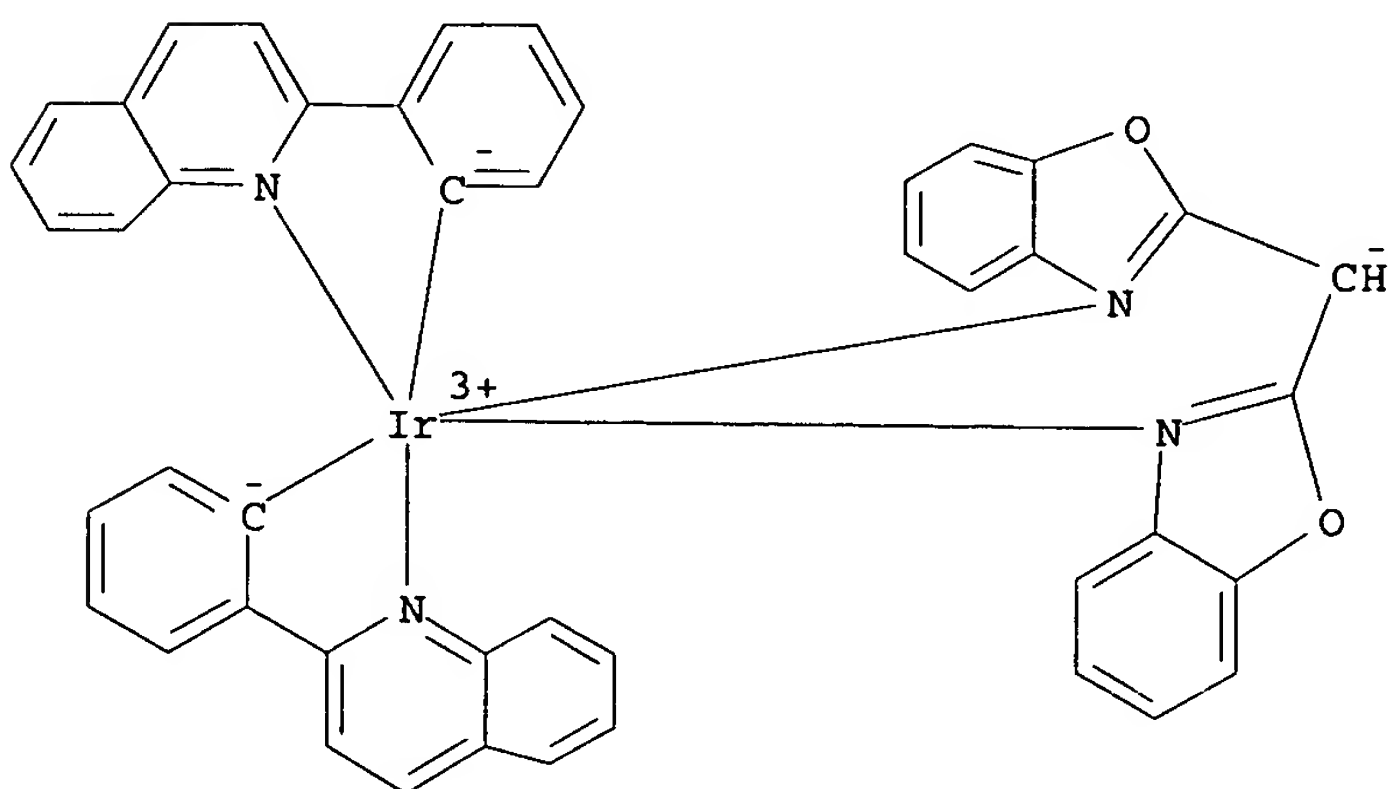
comprise: a pair of electrodes; and at least one organic layer provided between the pair of electrodes, at least one of the at least one organic layer being a light emitting layer, where the light-emitting layer comprises a compound represented by the formula (I), where R11 and R12 each represent a hydrogen atom or a substituent; Y11, Y12, and Y13 each represent a substituted or unsubstituted carbon atom, a substituted or unsubstituted nitrogen atom, an oxygen atom or a sulfur atom; M11 represents a transition metal ion; L11 represents a ligand; X11 represents a counter ion; n11 represents an integer of 1 to 3; n12 represents an integer of 0 to 4; and n13 represents an integer of 0 to 4; with proviso that a compound in which R11 and R12 are connected together to form a porphyrin ring is excluded. A compound represented by the formula (II) are discussed, where Y67 and Y68 each represents an oxygen atom, a sulfur atom, a quaternary carbon atom or a substituted or unsubstituted nitrogen atom; R61, R62, R63, R64, and R65 each represents a substituent; and n62, n63, n64, and n65 each represents an integer of 0 to 4.

IT 677751-50-7P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(organic electroluminescent devices containing transition metal complex)

RN 677751-50-7 HCAPLUS

CN Iridium, [[2,2'-methylenebis[benzoxazolatoκN3]](1-)]bis[2-(2-quinolinyl-κN)phenyl-κC] - (9CI) (CA INDEX NAME)



IC ICM C09K011-06

INCL 204296000; 252301160

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76, 78

IT 677751-50-7P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(organic electroluminescent devices containing transition metal complex)

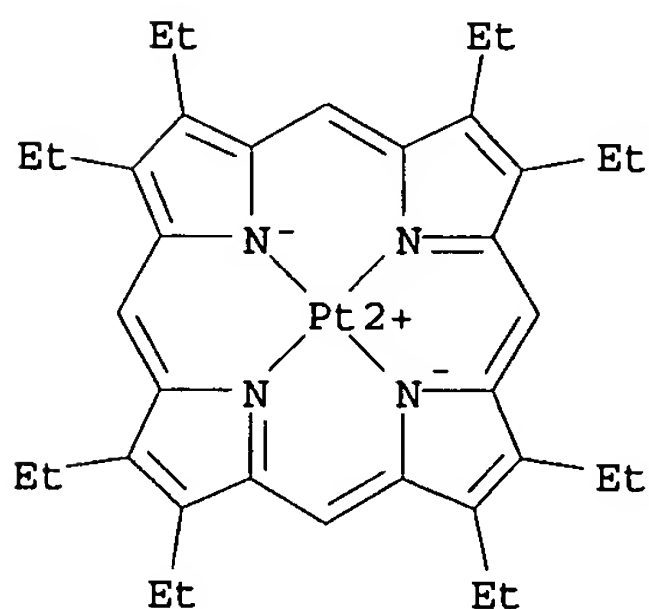
=> => d 165 1-43 cbib hitstr hitind

L65 ANSWER 1 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:571086 Document No. 143:106090 Organinlight-emitting devices with polymer hole-transporting layers and their fabrication. Patel, Nalinkumar; Conway,

Natasha; Leadbeater, Mark; Grizzi, Ilaria (Cambridge Display Technology Limited, UK). PCT Int. Appl. WO 2005059951 A2 20050630, 28 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-GB5392 20041220. PRIORITY: GB 2003-29364 20031219.

IT 31248-39-2, Platinum octaethylporphyrin
 RL: CPS (Chemical process); DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (organic light-emitting device fabrication with formation of charge-transporting layers from solns. and devices with hole-transporting layers including triarylamine reparting unit-containing polymers)

RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IC ICM H01L
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76
 ST org light emitting device hole transport triarylamine polymer; org light emitting device fabrication charge transport layer coating
 IT Semiconductor device fabrication
 (organic light-emitting device fabrication with formation of charge-transporting layers from solns. and devices with hole-transporting layers including triarylamine reparting unit-containing polymers)

IT Electroluminescent devices
 (organic; organic light-emitting device fabrication with formation of charge-transporting layers from solns. and devices with hole-transporting layers including triarylamine reparting unit-containing polymers)

IT 31248-39-2, Platinum octaethylporphyrin 856219-87-9
 RL: CPS (Chemical process); DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

(organic light-emitting device fabrication with formation of charge-transporting layers from solns. and devices with hole-transporting layers including triarylamine reparting unit-containing polymers)

IT 58328-31-7, CBP 202832-76-6D, polymer with diphenylfluorendiyl and dioctylfluorendiyl and butylphenylaminodiphenyl 220797-16-0, F8-TFB 330649-87-1D, Poly(9,9-diphenyl-9H-fluorene-2,7-diyl), polymer with dioctylfluorendiyl and methylpropylphenylaminodiphenyl and butylphenylaminodiphenyl 479517-48-1D, polymer with diphenylfluorendiyl and methylpropylphenylaminodiphenyl and dioctylfluorendiyl 856215-76-4D, polymer with diphenylfluorendiyl and methylpropylphenylaminodiphenyl and butylphenylaminodiphenyl
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

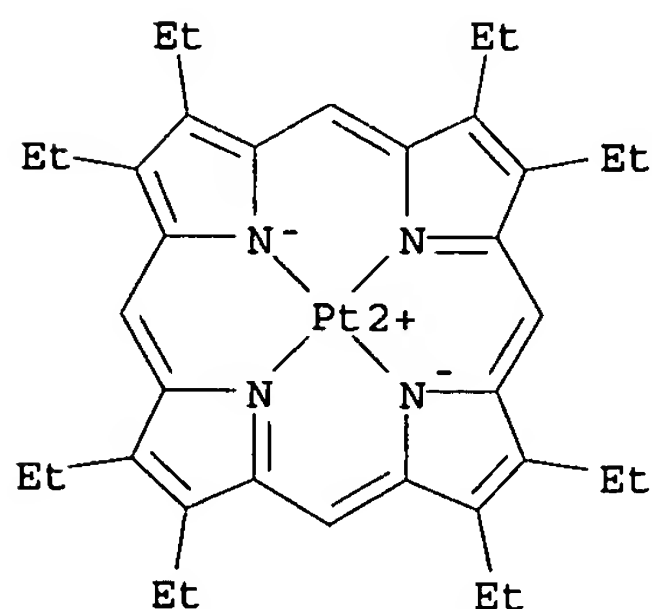
(organic light-emitting device fabrication with formation of charge-transporting layers from solns. and devices with hole-transporting layers including triarylamine reparting unit-containing polymers)

L65 ANSWER 2 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:453698 Document No. 142:490164 Full color organic electroluminescent device. Ju, Sang-Hyun; Kim, Mu-Hyun; Kwon, Jang-Hyuk; Kim, Sung-Chul; Chung, Ho-Kyoon; Chin, Byung-Doo; Lee, Seong-Taek (S. Korea). U.S. Pat. Appl. Publ. US 2005112403 A1 20050526, 9 pp. (English). CODEN: USXXCO. APPLICATION: US 2004-938464 20040909. PRIORITY: KR 2003-84238 20031125.

IT 31248-39-2
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(red emitting layer; full color organic electroluminescent device using phosphorescent and fluorescent material)

RN 31248-39-2 HCAPLUS
CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)- κ N21, κ N22, κ N23, κ N24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IC ICM H05B033-12
INCL 428690000; 428917000; 313504000; 313506000; 257089000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74, 76
ST full color electroluminescent device phosphorescent fluorescent material
IT Electroluminescent devices

Phosphorescent substances
 (full color organic **electroluminescent** device using phosphorescent and fluorescent material)

IT 852201-29-7, IDE 140
 RL: DEV (Device component use); USES (Uses)
 (blue phosphor; full color organic **electroluminescent** device using phosphorescent and fluorescent material)

IT 397844-59-6, IDE 105
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (blue phosphor; full color organic **electroluminescent** device using phosphorescent and fluorescent material)

IT 1608-30-6 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline
 16449-21-1 26009-24-5, Poly(1,4-phenylene-1,2-ethenediyl)
 123864-00-6, Poly(9,9-dioctylfluorene) 142289-08-5, DPVBi
 146162-54-1, BALq 150155-92-3 296269-66-4 435293-93-9
 RL: DEV (Device component use); USES (Uses)
 (full color organic **electroluminescent** device using phosphorescent and fluorescent material)

IT 94928-86-6
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (green emitting layer; full color organic **electroluminescent** device using phosphorescent and fluorescent material)

IT 852201-34-4, HBM 010
 RL: DEV (Device component use); USES (Uses)
 (hole blocking layer; full color organic **electroluminescent** device using phosphorescent and fluorescent material)

IT 627090-84-0, IDE 406
 RL: DEV (Device component use); USES (Uses)
 (hole injecting layer; full color organic **electroluminescent** device using phosphorescent and fluorescent material)

IT 627090-85-1, IDE 320
 RL: DEV (Device component use); USES (Uses)
 (hole transporting layer; full color organic **electroluminescent** device using phosphorescent and fluorescent material)

IT 58328-31-7, CBP
 RL: DEV (Device component use); USES (Uses)
 (red emitting layer; full color organic **electroluminescent** device using phosphorescent and fluorescent material)

IT 31248-39-2
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (red emitting layer; full color organic **electroluminescent** device using phosphorescent and fluorescent material)

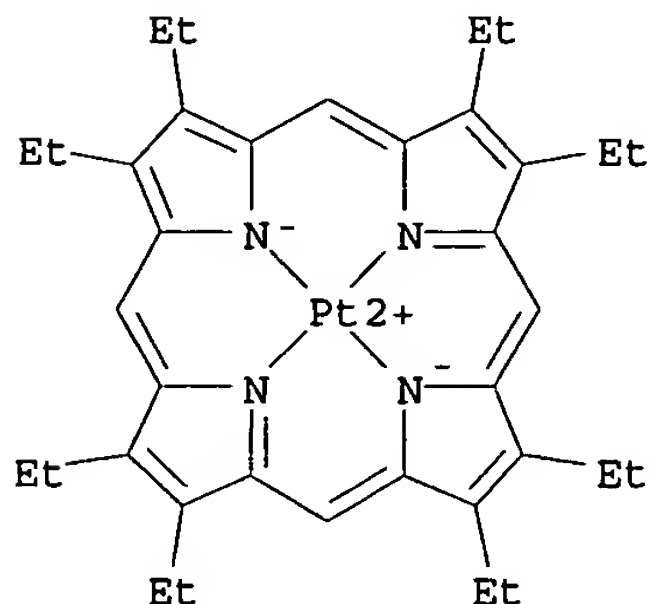
L65 ANSWER 3 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2005:450653 Document No. 142:490203 Full color **OLED** and
 method for fabricating the same. Lee, Jun-Yeob (S. Korea). U.S.
 Pat. Appl. Publ. US 2005110398 A1 20050526, 8 pp. (English).
 CODEN: USXXCO. APPLICATION: US 2004-980090 20041102. PRIORITY: KR
 2003-84239 20031125.

IT 31248-39-2
 RL: CPS (Chemical process); DEV (Device component use); PEP
 (Physical, engineering or chemical process); PRP (Properties); PYP
 (Physical process); PROC (Process); USES (Uses)

(full color OLED and method for fabricating the same)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
INDEX NAME)



IC ICM H05B033-00

INCL 313504000; 313506000

CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

ST full color OLED display manuf

IT Electroluminescent devices

(displays; full color OLED and method for fabricating the same)

IT Luminescent screens

(electroluminescent; full color OLED and method for fabricating the same)

IT Electrodes

Electroluminescent devices

Fluorescent substances

HOMO (molecular orbital)

Phosphors

(full color OLED and method for fabricating the same)

IT 150155-92-3

RL: CPS (Chemical process); DEV (Device component use); PEP

(Physical, engineering or chemical process); PRP (Properties); PYP

(Physical process); PROC (Process); USES (Uses)

(CF-X and CF-Y; full color OLED and method for fabricating the same)

IT 147-14-8, Copper phthalocyanine 1608-30-6, Distyrylbenzene

2085-33-8, Alq3 26009-24-5, Poly(1,4-phenylene-1,2-ethenediyl)

31248-39-2 50926-11-9, Indium tin oxide 58328-31-7, Cbp

94928-86-6 123847-85-8 142289-08-5, Dpvbi 146162-54-1, BAlq

296269-66-4 337526-95-1 344396-72-1, IDE 120 397844-59-6, IDE

105 435293-93-9

RL: CPS (Chemical process); DEV (Device component use); PEP

(Physical, engineering or chemical process); PRP (Properties); PYP

(Physical process); PROC (Process); USES (Uses)

(full color OLED and method for fabricating the same)

L65 ANSWER 4 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN

2005:323495 Document No. 142:400274 Luminous element and display.

Kishino, Kengo; Okada, Shinjiro; Tsuboyama, Akira; Igawa, Satoshi;

Furukori, Manabu; Iwawaki, Hironobu (Canon Inc., Japan). Jpn. Kokai

Tokkyo Koho JP 2005100957 A2 20050414, 16 pp. (Japanese). CODEN:

JKXXAF. APPLICATION: JP 2004-225630 20040802. PRIORITY: JP
2003-305851 20030829.

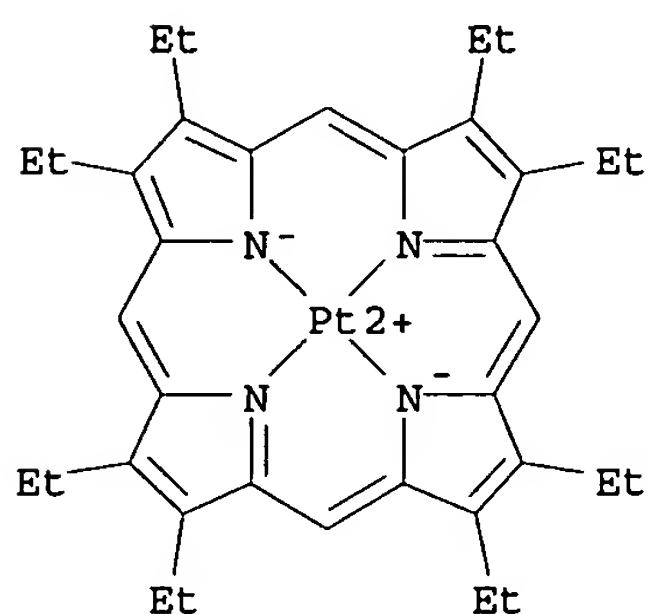
IT 31248-39-2

RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)

(luminous element and display)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
INDEX NAME)



IC ICM H05B033-14

ICS C09K011-06; C07F015-00

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

Section cross-reference(s): 29, 74

IT **Electroluminescent** devices

Optical imaging devices

(luminous element and display)

IT 31248-39-2 94928-86-6 337526-98-4 435293-93-9
435294-37-4 603126-18-7

RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)

(luminous element and display)

L65 ANSWER 5 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN

2005:284245 Document No. 142:312725 Time-resolved

electrochemiluminescence spectrometry of luminescent markers for
biochemical analysis. Kulmala, Sakari Mikael; Korpela, Timo Kalevi;
Eskola, Jarkko Uolevi; Papkovsky, Dimitri B.; Ala-Kleme, Timo
Vaelnoe Kalevi; Vaere, Leif Aatos; Helin, Mika Kristian; Kulmala,
Aija Helena (Finland). Finn. FI 111663 B1 20030829, 26 pp.
(Finnish). CODEN: FIXXAP. APPLICATION: FI 1998-2482 19981117.

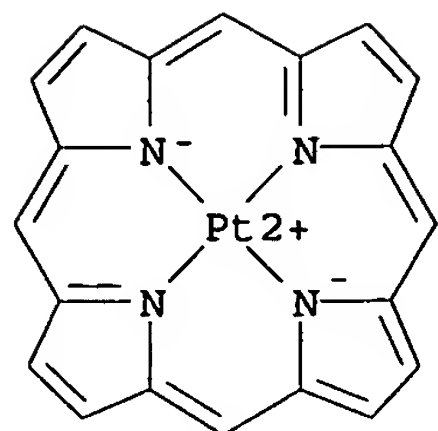
IT 847935-67-5

RL: ARG (Analytical reagent use); ANST (Analytical study); USES
(Uses)

(in time-resolved electrochemiluminescence spectrometry of
luminescent markers for biochem. anal.)

RN 847935-67-5 HCAPLUS

CN Platinate(4-), [C,C,C,3-tetramethyl-21H,23H-porphine-C,C,C,2-
tetrapropanoato(6-)-κN21,κN22,κN23,κN24]-,
tetrahydrogen (9CI) (CA INDEX NAME)

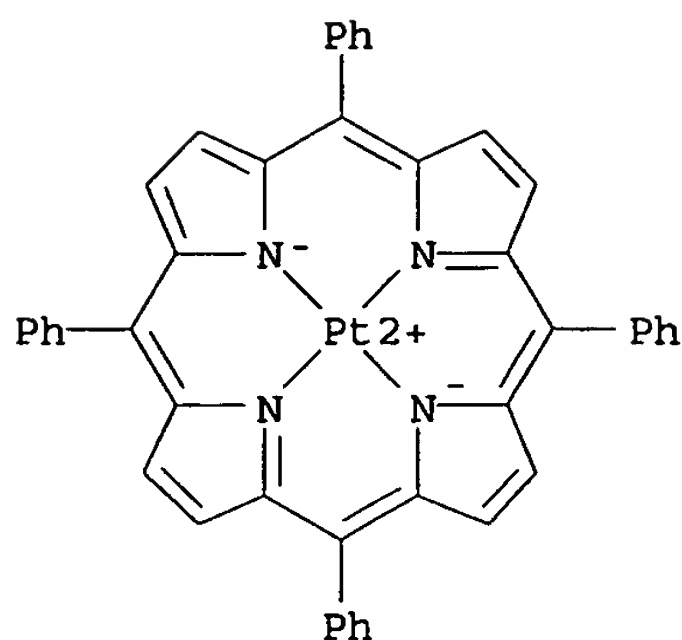


● 4 H⁺

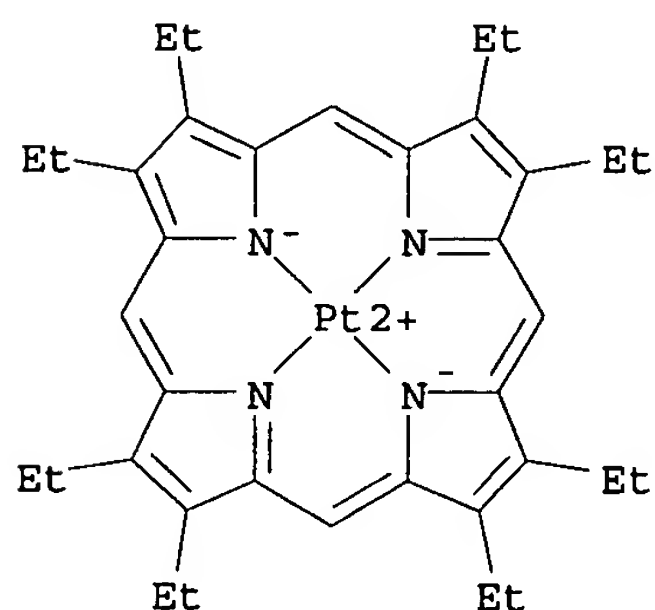
4 (D1-Me)

4 [D1-CH₂-CH₂-CO₂⁻]

IC ICM G01N
 CC 9-5 (Biochemical Methods)
 Section cross-reference(s): 72, 80
 IT Luminescent substances
 (electroluminescent; time-resolved
 electrochemiluminescence spectrometry of luminescent markers for
 biochem. anal.)
 IT 521-31-3, Luminol 2321-07-5, Fluorescein 3682-14-2, Iso-luminol
 17372-87-1, Eosin 18955-01-6 847935-67-5 847935-69-7
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES
 (Uses)
 (in time-resolved electrochemiluminescence spectrometry of
 luminescent markers for biochem. anal.)
 L65 ANSWER 6 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2005:280894 Document No. 142:363429 Organicelectroluminescent
 (EL) devices with high luminance, emission efficiency, and
 durability and materials therefor. Suda, Yasumasa; Enokida, Toshio;
 Toba, Yasumasa; Kaneko, Tetsuya; Kimura, Yasunori; Onikubo, Shunichi
 (Toyo Ink Mfg. Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP
 2005082644 A2 20050331, 33 pp. (Japanese). CODEN: JKXXAF.
 APPLICATION: JP 2003-313643 20030905.
 IT 14187-14-5 31248-39-2
 RL: DEV (Device component use); MOA (Modifier or additive use); TEM
 (Technical or engineered material use); USES (Uses)
 (dopants, emitting layers; nitrogen-containing heterocyclic
 phosphors for organic EL devices with high luminance,
 emission efficiency, and durability)
 RN 14187-14-5 HCAPLUS
 CN Platinum, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)-(9CI) (CA
 INDEX NAME)



RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)-(9CI) (CA
 INDEX NAME)



IC ICM C09K011-06
 ICS H05B033-14
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 ST org **electroluminescent** emission efficiency durability
 luminance; **EL** phosphor nitrogen heterocyclic
 organometallic dopant
 IT Organometallic compounds
 RL: DEV (Device component use); MOA (Modifier or additive use); TEM
 (Technical or engineered material use); USES (Uses)
 (dopants, emitting **layers**; nitrogen-containing heterocyclic
 phosphors for organic **EL** devices with high luminance,
 emission efficiency, and durability)
 IT Phosphors
 (nitrogen-containing heterocyclic phosphors for organic **EL**
 devices with high luminance, emission efficiency, and durability)
 IT **Electroluminescent** devices
 (organic; nitrogen-containing heterocyclic phosphors for organic **EL**
 devices with high luminance, emission efficiency, and durability)
 IT 155306-71-1
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (dopants, emitting **layers**; nitrogen-containing heterocyclic
 phosphors for organic **EL** devices with high luminance,

emission efficiency, and durability)

IT 14187-14-5 31248-39-2 94928-86-6 376367-93-0
800394-58-5 800395-01-1 848902-76-1
RL: DEV (Device component use); MOA (Modifier or additive use); TEM
(Technical or engineered material use); USES (Uses)
(dopants, emitting layers; nitrogen-containing heterocyclic
phosphors for organic EL devices with high luminance,
emission efficiency, and durability)

IT 2085-33-8, Alq3 395644-78-7
RL: DEV (Device component use); USES (Uses)
(electron-injecting layers; nitrogen-containing
heterocyclic phosphors for organic EL devices with high
luminance, emission efficiency, and durability)

IT 905-62-4, 2,5-Bis(1-naphthyl)-1,3,4-oxadiazole
RL: DEV (Device component use); USES (Uses)
(emitting layers; nitrogen-containing heterocyclic
phosphors for organic EL devices with high luminance,
emission efficiency, and durability)

IT 32833-13-9P
RL: DEV (Device component use); IMF (Industrial manufacture); TEM
(Technical or engineered material use); PREP (Preparation); USES
(Uses)
(emitting layers; nitrogen-containing heterocyclic
phosphors for organic EL devices with high luminance,
emission efficiency, and durability)

IT 848862-51-1 848862-52-2 848862-53-3 848862-54-4 848862-55-5
848862-56-6 848862-57-7 848862-58-8 848862-59-9 848862-60-2
848862-61-3 848862-62-4 848862-63-5 848862-64-6 848862-65-7
RL: DEV (Device component use); TEM (Technical or engineered
material use); USES (Uses)
(emitting layers; nitrogen-containing heterocyclic
phosphors for organic EL devices with high luminance,
emission efficiency, and durability)

IT 1662-01-7, Bathophenanthroline 4733-39-5, Bathocuproin
146162-49-4 146162-54-1 150405-69-9, 3-(4-Biphenyl)-4-phenyl-5-
(4-tert-butylphenyl)-1,2,4-triazole 221554-51-4 848902-77-2
848902-78-3
RL: DEV (Device component use); USES (Uses)
(hole-blocking layers; nitrogen-containing heterocyclic
phosphors for organic EL devices with high luminance,
emission efficiency, and durability)

IT 147-14-8, Copper phthalocyanine 65181-78-4 123847-85-8
182507-83-1 185690-39-5, 4,4',4''-Tris[N-(1-naphthyl)-N-
phenylamino]triphenylamine
RL: DEV (Device component use); USES (Uses)
(hole-injecting layers; nitrogen-containing heterocyclic
phosphors for organic EL devices with high luminance,
emission efficiency, and durability)

IT 3097-21-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of phosphors; nitrogen-containing heterocyclic phosphors
for organic EL devices with high luminance, emission
efficiency, and durability)

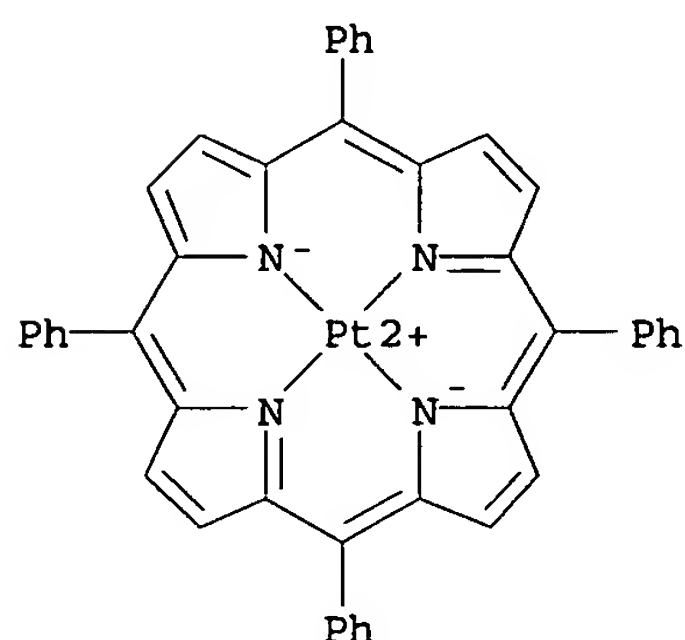
L65 ANSWER 7 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:275804 Document No. 142:363426 Organicelectroluminescent
devices with high luminance, durability, and emission efficiency and
materials therefor. Onikubo, Shunichi; Enokida, Toshio; Suda,
Yasumasa; Toba, Yasumasa; Kimura, Yasunori; Kaneko, Tetsuya (Toyo
Ink Mfg. Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005082703 A2
20050331, 35 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
2003-316325 20030909.

IT 14187-14-5 31248-39-2

RL: DEV (Device component use); MOA (Modifier or additive use); TEM
(Technical or engineered material use); USES (Uses)
(dopants, emitting layers; phosphors containing
benzobisthiazole-like fused heterocyclic compds. for durable organic
EL devices with high emission efficiency)

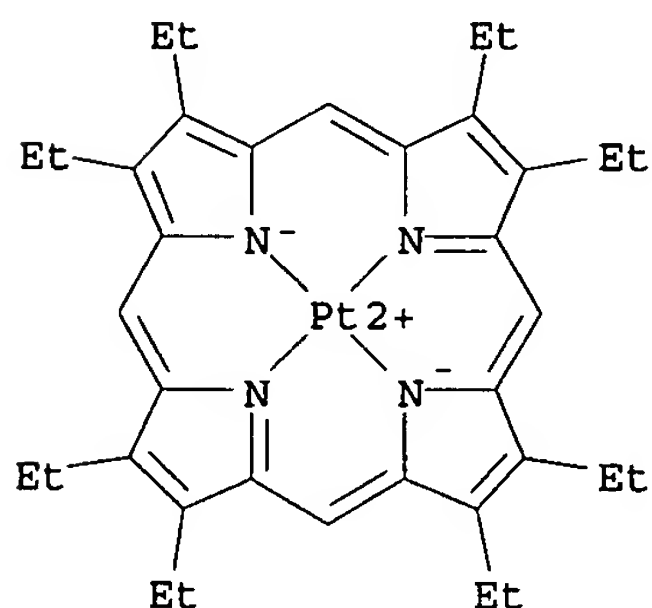
RN 14187-14-5 HCAPLUS

CN Platinum, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-
κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
INDEX NAME)



RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
INDEX NAME)



IC ICM C09K011-06

ICS H05B033-14

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

ST org electroluminescent emission efficiency durability
luminance; EL phosphor benzobisthiazole benzobisoxazole
benzobisimidazole; phosphorescent iridium platinum complex doped
EL phosphor

IT Electroluminescent devices

(organic; phosphors containing benzobisthiazole-like fused heterocyclic
compds. for durable organic EL devices with high emission
efficiency)

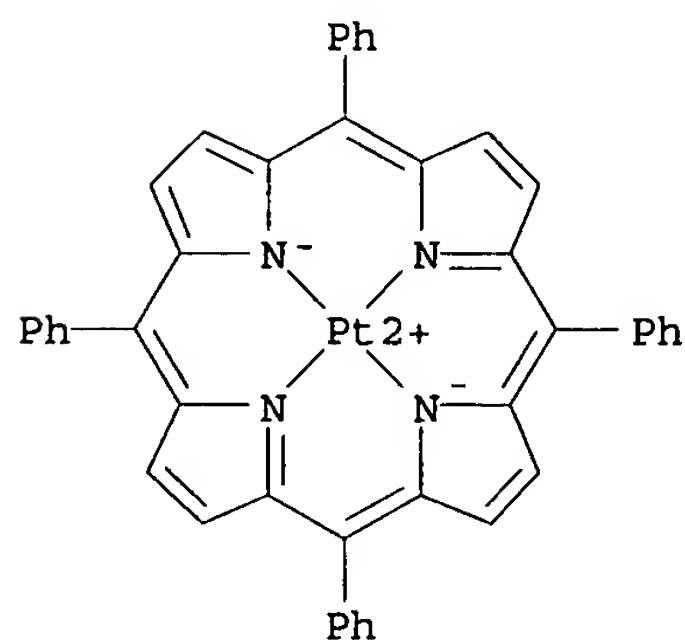
IT Phosphors

- (phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organicEL devices with high emission efficiency)
- IT 14187-14-5 31248-39-2 94928-86-6 149005-33-4
343978-94-9 376367-93-0 848902-76-1
RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(dopants, emitting layers; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organic EL devices with high emission efficiency)
- IT 2085-33-8 395644-78-7
RL: DEV (Device component use); USES (Uses)
(electron-injecting layers; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organic EL devices with high emission efficiency)
- IT 65181-78-4
RL: DEV (Device component use); USES (Uses)
(emitting layers, hole-injecting layers; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organicEL devices with high emission efficiency)
- IT 905-62-4, 2,5-Bis(1-naphthyl)-1,3,4-oxadiazole
RL: DEV (Device component use); USES (Uses)
(emitting layers; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organicEL devices with high emission efficiency)
- IT 219596-73-3P 219596-76-6P 219597-18-9P
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(emitting layers; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organicEL devices with high emission efficiency)
- IT 13399-13-8 133531-74-5 219596-84-6 219596-97-1 219597-01-0
219597-22-5 219597-29-2 219597-32-7 219597-58-7 848941-49-1
848941-50-4 848941-51-5 848941-52-6 848941-53-7 848941-54-8
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(emitting layers; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organicEL devices with high emission efficiency)
- IT 1662-01-7, Bathophenanthroline 4733-39-5, Bathocuproin
146162-49-4 150405-69-9, 3-(4-Biphenyl)-4-phenyl-5-(4-tert-butylphenyl)-1,2,4-triazole 188049-37-8 221554-51-4
848902-77-2 848902-78-3
RL: DEV (Device component use); USES (Uses)
(hole-blocking layers; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organic EL devices with high emission efficiency)
- IT 147-14-8, Copper phthalocyanine 123847-85-8 182507-83-1
185690-39-5, 4,4',4''-Tris[N-(1-naphthyl)-N-phenylamino]triphenylamine
RL: DEV (Device component use); USES (Uses)
(hole-injecting layers; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organic EL devices with high emission efficiency)
- IT 4051-56-3 16523-31-2 31671-77-9, Anthraldehyde 848941-55-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of phosphors; phosphors containing benzobisthiazole-like fused heterocyclic compds. for durable organicEL devices with high emission efficiency)

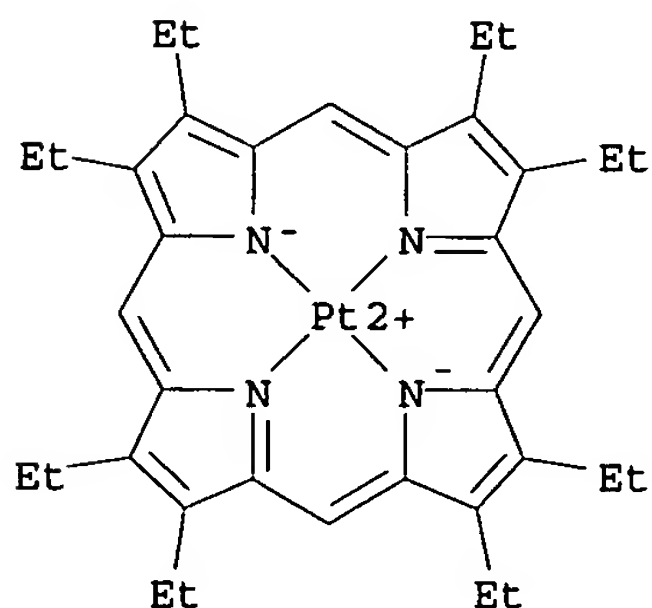
L65 ANSWER 8 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2005:275803 Document No. 142:363425 Organicelectroluminescent
 devices with high luminance, durability, and emission efficiency and
 materials therefor. Onikubo, Shunichi; Enokida, Toshio; Suda,
 Yasumasa; Toba, Yasumasa; Kimura, Yasunori; Kaneko, Tetsuya (Toyo
 Ink Mfg. Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005082702 A2
 20050331, 54 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
 2003-316324 20030909.

IT 14187-14-5 31248-39-2
 RL: DEV (Device component use); MOA (Modifier or additive use); TEM
 (Technical or engineered material use); USES (Uses)
 (dopants, emitting layers; fused aromatic compound-containing
 phosphors for organic EL devices with high luminance,
 durability, and emission efficiency)

RN 14187-14-5 HCAPLUS
 CN Platinum, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
 INDEX NAME)



RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
 INDEX NAME)



IC ICM C09K011-06
 ICS H05B033-14; H05B033-22
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 ST org electroluminescent emission efficiency durability

luminance; fused alkoxybenzene acyloxybenzene benzenecarboxylic acid
 EL phosphor; alkoxytriphenylene phosphor iridium platinum
 complex doped EL

IT Phosphors
 (fused aromatic compound-containing phosphors for organicEL
 devices with high luminance, durability, and emission efficiency)

IT Electroluminescent devices
 (organic; fused aromatic compound-containing phosphors for organicEL
 devices with high luminance, durability, and emission efficiency)

IT 14187-14-5 31248-39-2 94928-86-6 149005-33-4
 344796-24-3 376367-93-0 848902-76-1
 RL: DEV (Device component use); MOA (Modifier or additive use); TEM
 (Technical or engineered material use); USES (Uses)
 (dopants, emitting layers; fused aromatic compound-containing
 phosphors for organicEL devices with high luminance,
 durability, and emission efficiency)

IT 208939-07-5 848940-26-1
 RL: DEV (Device component use); TEM (Technical or engineered
 material use); USES (Uses)
 (electron-blocking layers; fused aromatic compound-containing
 phosphors for organicEL devices with high luminance,
 durability, and emission efficiency)

IT 2085-33-8 23467-27-8 395644-78-7
 RL: DEV (Device component use); USES (Uses)
 (electron-injecting layers; fused aromatic compound-containing
 phosphors for organicEL devices with high luminance,
 durability, and emission efficiency)

IT 905-62-4, 2,5-Bis(1-naphthyl)1,3,4-oxadiazole 58328-31-7, CBP
 65181-78-4 192198-85-9
 RL: DEV (Device component use); USES (Uses)
 (emitting layers; fused aromatic compound-containing phosphors
 for organicEL devices with high luminance, durability,
 and emission efficiency)

IT 23417-07-4 32829-08-6 32829-11-1 134025-08-4 134025-15-3
 134656-41-0 162281-25-6 208938-92-5 208939-01-9 208939-08-6
 208939-12-2 208939-44-0 848940-19-2 848940-20-5 848940-22-7
 848940-23-8 848940-24-9 848940-25-0 848940-28-3
 RL: DEV (Device component use); TEM (Technical or engineered
 material use); USES (Uses)
 (emitting layers; fused aromatic compound-containing phosphors
 for organicEL devices with high luminance, durability,
 and emission efficiency)

IT 808-57-1P
 RL: DEV (Device component use); IMF (Industrial manufacture); TEM
 (Technical or engineered material use); PREP (Preparation); USES
 (Uses)
 (fused aromatic compound-containing phosphors for organicEL
 devices with high luminance, durability, and emission efficiency)

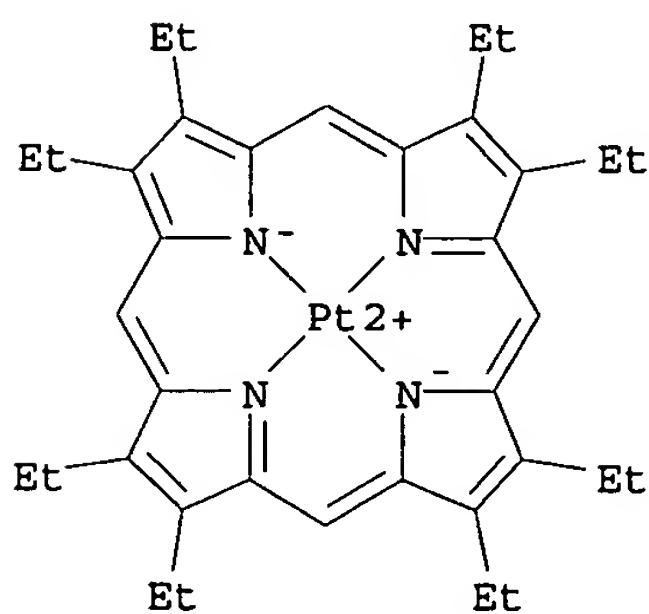
IT 1662-01-7, Bathophenanthroline 4733-39-5, Bathocuproin
 146162-49-4 146162-54-1 150405-69-9, 3-(4-Biphenyl)-4-phenyl-5-
 (4-tert-butylphenyl)-1,2,4-triazole 221554-51-4 848902-77-2
 848902-78-3
 RL: DEV (Device component use); USES (Uses)
 (hole-blocking layers; fused aromatic compound-containing
 phosphors for organicEL devices with high luminance,
 durability, and emission efficiency)

IT 208939-55-3 848940-21-6 848940-27-2
 RL: DEV (Device component use); TEM (Technical or engineered
 material use); USES (Uses)
 (hole-injecting and electron-blocking layers; fused
 aromatic compound-containing phosphors for organicEL devices with
 high luminance, durability, and emission efficiency)

- IT 147-14-8, Copper phthalocyanine 123847-85-8 182507-83-1
 185690-39-5, 4,4',4''-Tris[N-(1-naphthyl)-N-phenylamino]triphenylamine
 RL: DEV (Device component use); USES (Uses)
 (hole-injecting layers; fused aromatic compound-containing phosphors for organic EL devices with high luminance, durability, and emission efficiency)
- IT 91-16-7, 1,2-Dimethoxybenzene
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (in preparation of phosphors; fused aromatic compound-containing phosphors for organic EL devices with high luminance, durability, and emission efficiency)

L65 ANSWER 9 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2005:275802 Document No. 142:363424 Organicelectroluminescent devices with high luminance, durability, and emission efficiency and luminescent materials therefor. Yauchi, Hiroyuki; Onikubo, Shunichi; Enokida, Toshio; Suda, Yasumasa; Toba, Yasumasa; Kimura, Yasunori; Kaneko, Tetsuya (Toyo Ink Mfg. Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005082701 A2 20050331, 37 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-316323 20030909.

- IT 31248-39-2
 RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (dopants, emitting layers; phosphors containing compds. having plural indole, indazole, or benzotriazole rings for durable organic EL devices with high emission efficiency)
- RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)- κ N21, κ N22, κ N23, κ N24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



- IC ICM C09K011-06
 ICS H05B033-14
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- ST org electroluminescent emission efficiency durability
 luminance; EL phosphor polyindole polyindazole
 polybenzotriazole; iridium platinum complex phosphorescent additive
 phosphor
- IT Electroluminescent devices
 (organic; phosphors containing compds. having plural indole, indazole, or benzotriazole rings for durable organic EL devices with high emission efficiency)
- IT Phosphors
 (phosphors containing compds. having plural indole, indazole, or

benzotriazole rings for durable organicEL devices with high emission efficiency)

IT 31248-39-2 343978-79-0 376367-93-0 693794-98-8
800394-58-5 848902-76-1
RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(dopants, emitting layers; phosphors containing compds. having plural indole, indazole, or benzotriazole rings for durable organicEL devices with high emission efficiency)

IT 2085-33-8
RL: DEV (Device component use); USES (Uses)
(electron-injecting layers; phosphors containing compds. having plural indole, indazole, or benzotriazole rings for durable organicEL devices with high emission efficiency)

IT 905-62-4, 2,5-Bis(1-naphthyl)-1,3,4-oxadiazole
RL: DEV (Device component use); USES (Uses)
(emitting layers; phosphors containing compds. having plural indole, indazole, or benzotriazole rings for durable organicEL devices with high emission efficiency)

IT 156411-52-8P 848942-91-6P
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(emitting layers; phosphors containing compds. having plural indole, indazole, or benzotriazole rings for durable organicEL devices with high emission efficiency)

IT 14317-94-3 848942-87-0 848942-88-1 848942-89-2 848942-90-5
848942-92-7 848942-93-8 848942-94-9 848942-95-0 848942-96-1
848942-97-2 848942-98-3 848943-00-0 848943-01-1 848943-02-2
848943-03-3
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(emitting layers; phosphors containing compds. having plural indole, indazole, or benzotriazole rings for durable organicEL devices with high emission efficiency)

IT 1662-01-7, Bathophenanthroline 4733-39-5, Bathocuproin
146162-54-1 150405-69-9, 3-(4-Biphenyl)-4-phenyl-5-(4-tert-butylphenyl)-1,2,4-triazole 221554-51-4 848902-77-2, Aluminum bis(2-methyl-5-phenyl-8-hydroxyquinolate) (phenolate)
848902-78-3, Aluminum bis(2-methyl-8-hydroxyquinolate) (p-cyanophenolate) 848942-99-4
RL: DEV (Device component use); USES (Uses)
(hole-blocking layers; phosphors containing compds. having plural indole, indazole, or benzotriazole rings for durable organicEL devices with high emission efficiency)

IT 147-14-8, Copper phthalocyanine 65181-78-4 123847-85-8
182507-83-1 185690-39-5, 4,4',4''-Tris[N-(1-naphthyl)-N-phenylamino]triphenylamine
RL: DEV (Device component use); USES (Uses)
(hole-injecting layers; phosphors containing compds. having plural indole, indazole, or benzotriazole rings for durable organicEL devices with high emission efficiency)

IT 948-65-2, 2-Phenylindole 3001-15-8, 4,4'-Diiodobiphenyl
13097-01-3, 3-Phenyl-1H-indazole
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of hosts; phosphors containing compds. having plural indole, indazole, or benzotriazole rings for durable organicEL devices with high emission efficiency)

IT 395644-78-7
RL: DEV (Device component use); USES (Uses)
(phosphors containing compds. having plural indole, indazole, or benzotriazole rings for durable organicEL devices with

high emission efficiency)

L65 ANSWER 10 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN

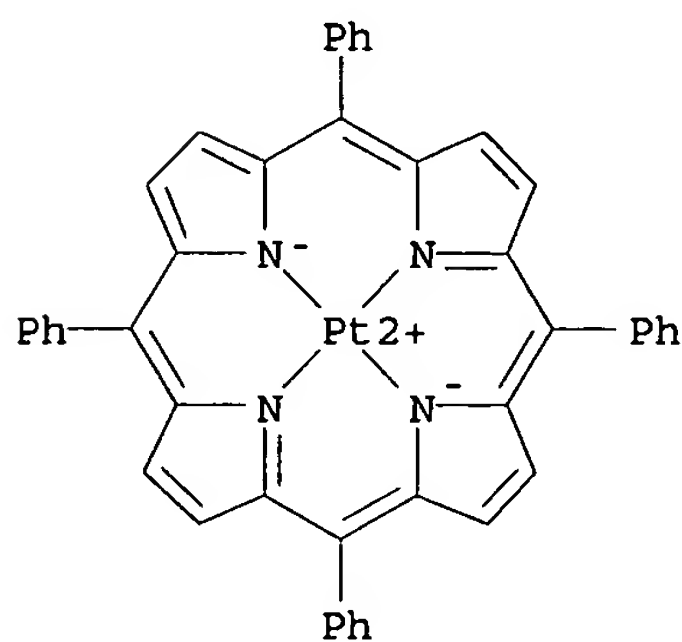
2005:275769 Document No. 142:363423 Organicelectroluminescent devices with high luminance, durability, and emission efficiency and azepine compound-containing materials therefor. Suda, Yasumasa; Enokida, Toshio; Toba, Yasumasa; Kaneko, Tetsuya; Kimura, Yasunori; Onikubo, Shunichi (Toyo Ink Mfg. Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005082645 A2 20050331, 32 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-313644 20030905.

IT 14187-14-5 31248-39-2

RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(dopants, emitting layers; bis(benzo[d]azepine)-containing phosphors for organicEL devices with high luminance, durability, and emission efficiency)

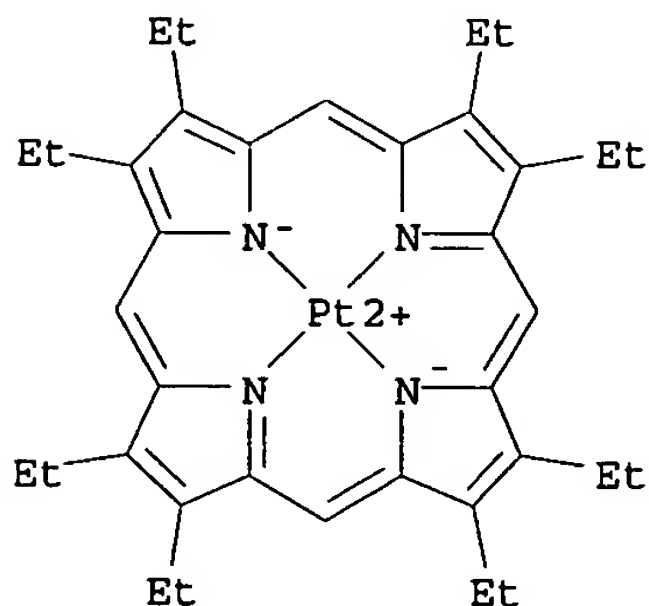
RN 14187-14-5 HCAPLUS

CN Platinum, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IC ICM C09K011-06

ICS H05B033-14

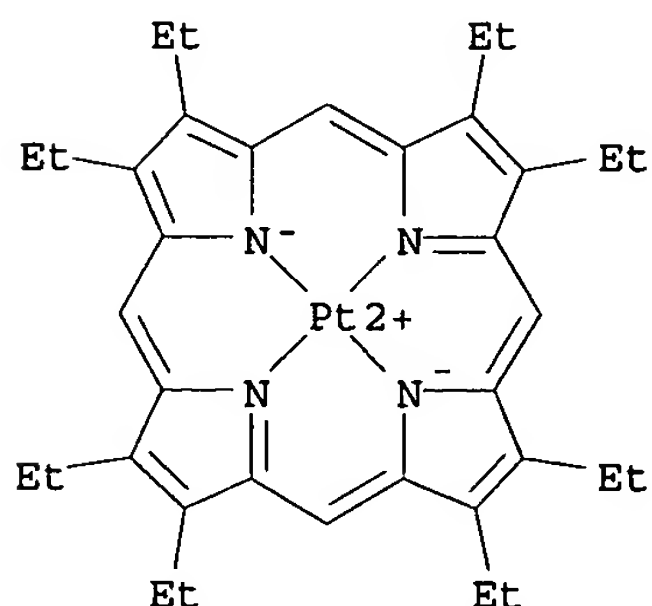
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related

Properties)
 ST org electroluminescent emission efficiency durability
 luminance; EL phosphor bisbenzazepine organometallic
 dopant
 IT Phosphors
 (bis(benzo[d]azepine)-containing phosphors for organic EL
 devices with high luminance, durability, and emission efficiency)
 IT Organometallic compounds
 RL: DEV (Device component use); MOA (Modifier or additive use); TEM
 (Technical or engineered material use); USES (Uses)
 (dopants, emitting layers; bis(benzo[d]azepine)-containing
 phosphors for organic EL devices with high luminance,
 durability, and emission efficiency)
 IT Electroluminescent devices
 (organic; bis(benzo[d]azepine)-containing phosphors for organic EL
 devices with high luminance, durability, and emission efficiency)
 IT 14187-14-5 31248-39-2 94928-86-6 149005-33-4
 376367-93-0 800395-01-1 848902-76-1 848951-47-3 848951-48-4
 RL: DEV (Device component use); MOA (Modifier or additive use); TEM
 (Technical or engineered material use); USES (Uses)
 (dopants, emitting layers; bis(benzo[d]azepine)-containing
 phosphors for organic EL devices with high luminance,
 durability, and emission efficiency)
 IT 2085-33-8, Alq3 395644-78-7
 RL: DEV (Device component use); USES (Uses)
 (electron-injecting layers; bis(benzo[d]azepine)-containing
 phosphors for organic EL devices with high luminance,
 durability, and emission efficiency)
 IT 905-62-4, 2,5-Bis(1-naphthyl)-1,3,4-oxadiazole
 RL: DEV (Device component use); USES (Uses)
 (emitting layers; bis(benzo[d]azepine)-containing phosphors
 for organic EL devices with high luminance, durability,
 and emission efficiency)
 IT 848951-34-8P
 RL: DEV (Device component use); IMF (Industrial manufacture); TEM
 (Technical or engineered material use); PREP (Preparation); USES
 (Uses)
 (emitting layers; bis(benzo[d]azepine)-containing phosphors
 for organic EL devices with high luminance, durability,
 and emission efficiency)
 IT 848951-35-9 848951-36-0 848951-37-1 848951-38-2 848951-39-3
 848951-40-6 848951-41-7 848951-42-8 848951-43-9 848951-44-0
 848951-45-1 848951-46-2
 RL: DEV (Device component use); TEM (Technical or engineered
 material use); USES (Uses)
 (emitting layers; bis(benzo[d]azepine)-containing phosphors
 for organic EL devices with high luminance, durability,
 and emission efficiency)
 IT 1662-01-7, Bathophenanthroline 4733-39-5, Bathocuproin
 146162-49-4 150405-69-9, 3-(4-Biphenyl)-4-phenyl-5-(4-tert-
 butylphenyl)-1,2,4-triazole 221554-51-4 848902-77-2
 848902-78-3
 RL: DEV (Device component use); USES (Uses)
 (hole-blocking layers; bis(benzo[d]azepine)-containing
 phosphors for organic EL devices with high luminance,
 durability, and emission efficiency)
 IT 147-14-8, Copper phthalocyanine 65181-78-4 123847-85-8
 182507-83-1 185690-39-5, 4,4',4''-Tris[N-(1-naphthyl)-N-
 phenylamino]triphenylamine
 RL: DEV (Device component use); USES (Uses)
 (hole-injecting layers; bis(benzo[d]azepine)-containing
 phosphors for organic EL devices with high luminance,

durability, and emission efficiency)
 IT 643-79-8, o-Phthalaldehyde 4151-80-8, 4,4'-Biphenyldiboronic acid
 6096-81-7
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (in preparation of phosphors; bis(benzo[d]azepine)-containing phosphors
 for organic EL devices with high luminance, durability,
 and emission efficiency)

L65 ANSWER 11 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2005:181996 Document No. 142:268973 Organiclights-
 emitting device with doped emission layer. Chin,
 Byung-Doo; Suh, Min-Chul; Kim, Mu-Hyun; Yang, Nam-Choul; Lee,
 Seong-Taek (S. Korea). U.S. Pat. Appl. Publ. US 2005046337 A1
 20050303, 8 pp. (English). CODEN: USXXCO. APPLICATION: US
 2004-913532 20040809. PRIORITY: KR 2003-61591 20030903.

IT 31248-39-2
 RL: CPS (Chemical process); DEV (Device component use); PEP
 (Physical, engineering or chemical process); PRP (Properties); PYP
 (Physical process); PROC (Process); USES (Uses)
 (organic light-emitting device with doped
 emission layer)
 RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
 INDEX NAME)



IC ICM H05B033-00
 ICS H01J001-62
 INCL 313504000
 CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 Section cross-reference(s): 76
 ST org light emitting device doped emission
 layer
 IT Electroluminescent devices
 (displays; organic light-emitting device with
 doped emission layer)
 IT Luminescent screens
 (electroluminescent; organic light-
 emitting device with doped emission layer)
 IT Doping
 Electroluminescent devices
 (organic light-emitting device with doped
 emission layer)
 IT 31248-39-2 84013-90-1, Bevaloid RD 61/419F764 94928-86-6
 343978-79-0 376367-93-0

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(organic light-emitting device with doped emission layer)

L65 ANSWER 12 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN

2005:140630 Document No. 142:248676 MicrocavityOLED devices and displays. Tyan, Yuan-sheng; Farruggia, Giuseppe; Shore, Joel D.; Deaton, Joseph C.; Van Slyke, Steven A. (Eastman Kodak Company, USA). U.S. Pat. Appl. Publ. US 2005037232 A1 20050217, 40 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-640907 20030814.

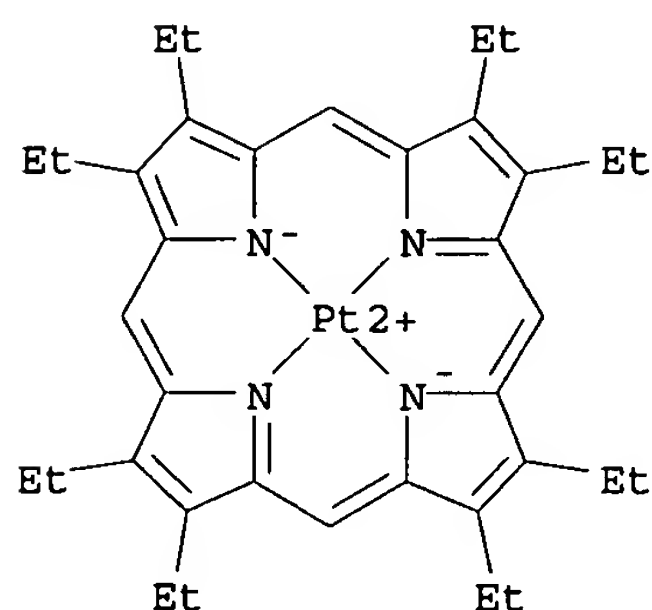
IT 31248-39-2

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(microcavity organic light-emitting devices and displays)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IC ICM H05B033-00

INCL 428690000; 428917000; 313504000; 313506000; 313114000; 257089000; 257098000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74, 76

ST microcavity org light emitting device display

IT Electroluminescent devices

(displays, organic; microcavity organic light-emitting devices and displays)

IT Luminescent screens

(electroluminescent, organic; microcavity organic light-emitting devices and displays)

IT Metallophthalocyanines

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(microcavity organic light-emitting devices and displays)

IT Electroluminescent devices

(organic; microcavity organic light-emitting devices and displays)

IT Fluoropolymers, uses

RL: DEV (Device component use); USES (Uses)
(plasma-deposited; microcavity organic light-emitting devices and displays)

emitting devices and displays)

IT Aluminum alloy, nonbase
Gold alloy, nonbase
Silver alloy, nonbase
RL: DEV (Device component use); USES (Uses)
(microcavity organic light-emitting devices and displays)

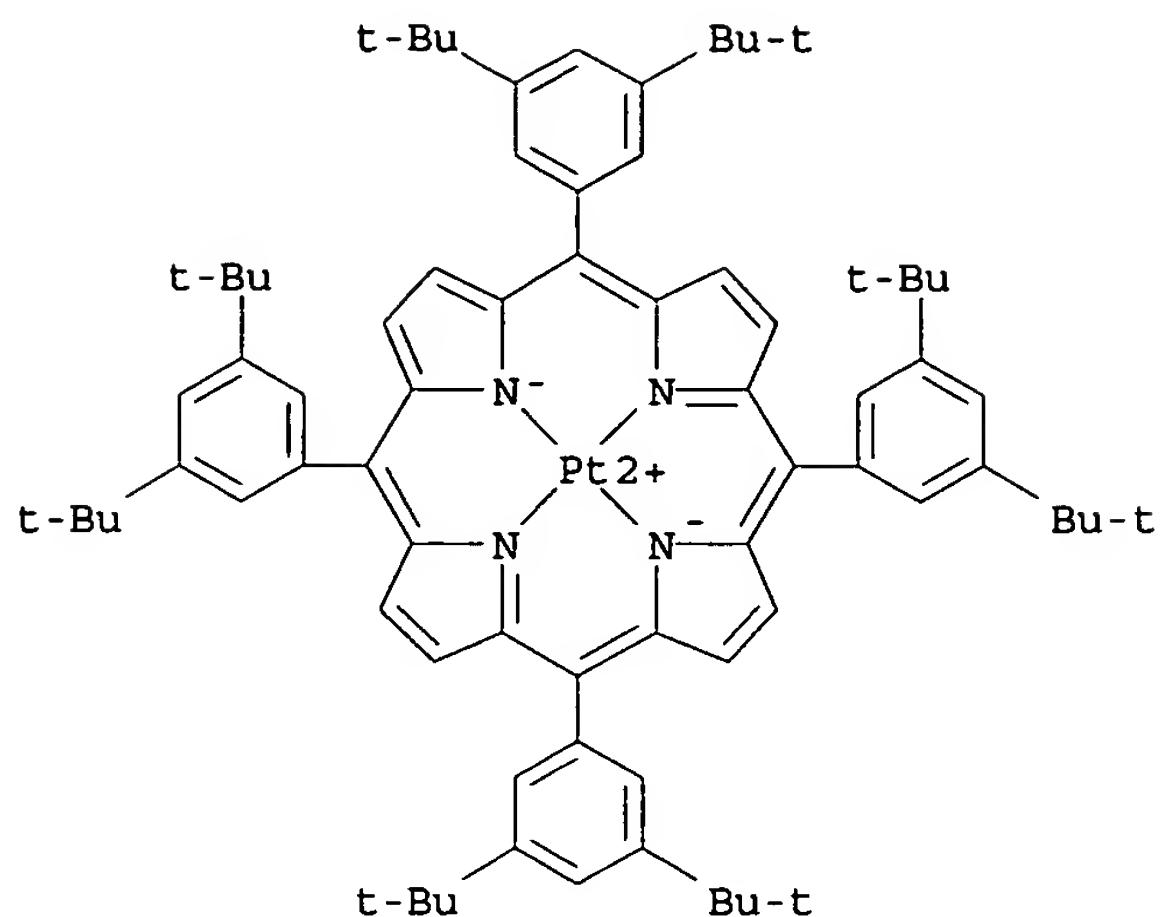
IT 1313-99-1D, Nickel oxide, nonstoichiometric 2085-33-8,
Tris(8-hydroxyquinolinato)aluminum 7429-90-5, Aluminum, uses
7440-22-4, Silver, uses 7440-57-5, Gold, uses 11098-99-0,
Molybdenum oxide 11099-11-9, Vanadium oxide 37334-02-4
58328-31-7 123847-85-8, NPB 200052-70-6, DCJTB 274905-73-6,
2-(tert-Butyl)-9,10-di-(2-naphthyl)anthracene
RL: DEV (Device component use); USES (Uses)
(microcavity organic light-emitting devices and displays)

IT 81-88-9 86-73-7D, Fluorene, derivs. 91-64-5, Coumarin 92-24-0,
Tetracene 92-83-1, Xanthene 120-12-7, Anthracene, uses
198-55-0, Perylene 289-67-8D, Pyrylium, derivs. 289-74-7D,
Thiapyrylium, derivs. 517-51-1, Rubrene 1047-16-1, Quinacridone
7440-27-9D, Terbium, compds. 7440-53-1D, Europium, compds.
31248-39-2 55035-43-3, 4-(Di-p-Tolylamino)-4'-[(di-p-
tolylamino)styryl]stilbene 60475-00-5D, Thiopyran, derivs.
88821-71-0 94928-86-6, Tris(2-phenylpyridine)iridium 100012-12-2
128025-34-3 337526-85-9 343978-79-0 376367-93-0 400654-08-2
435293-93-9
RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)
(microcavity organic light-emitting devices and displays)

L65 ANSWER 13 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:27647 Document No. 142:287175 Nanoscale organic
electroluminescence from tunnel junctions. Guo, X.-L.;
Dong, Z.-C.; Trifonov, A. S.; Miki, K.; Wakayama, Y.; Fujita, D.;
Kimura, K.; Yokoyama, S.; Mashiko, S. (National Institute for
Materials Science, Tsukuba, 305-0044, Japan). Physical Review B:
Condensed Matter and Materials Physics, 70(23), 233204/1-233204/4
(English) 2004. CODEN: PRBMDO. ISSN: 1098-0121. Publisher:
American Physical Society.

IT 439211-43-5
RL: PEP (Physical, engineering or chemical process); PRP
(Properties); PYP (Physical process); PROC (Process)
(buffer layer; nanoscale organic
electroluminescence from tunnel junctions)

RN 439211-43-5 HCAPLUS
CN Platinum, [5,10,15,20-tetrakis[3,5-bis(1,1-dimethylethyl)phenyl]-
21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-
, (SP-4-1)-(9CI) (CA INDEX NAME)



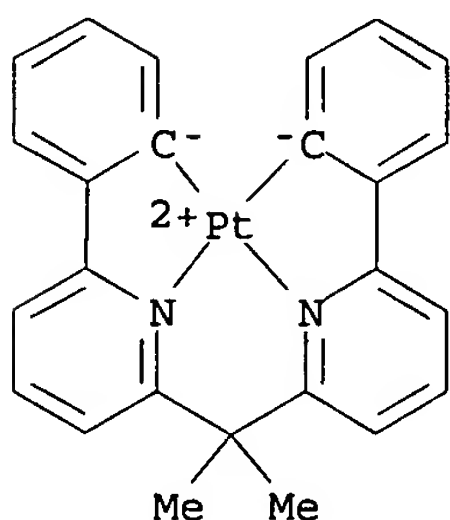
- CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 66, 76
- ST nanoscale **electroluminescence** tunnel junction porphyrin monolayer STM luminescence
- IT Fluorescence
Luminescence
(STM-induced; nanoscale **organicelectroluminescence** from tunnel junctions)
- IT Adsorbed monolayers
Luminescence, electroluminescence
Tunnel junctions
(nanoscale **organic electroluminescence** from tunnel junctions)
- IT Scanning tunneling microscopy
(nanoscale **organicelectroluminescence** from tunnel junctions induced by)
- IT Surface structure
(of junction; nanoscale **organicelectroluminescence** from tunnel junctions)
- IT Hot electrons
(photoinjection; nanoscale **organicelectroluminescence** from tunnel junctions in relation to)
- IT **439211-43-5**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(buffer layer; nanoscale **organic electroluminescence** from tunnel junctions)
- IT 7440-33-7, Tungsten, uses
RL: DEV (Device component use); USES (Uses)
(microscope tip; nanoscale **organicelectroluminescence** from tunnel junctions)
- IT 7440-50-8, Copper, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(substrate; nanoscale **organicelectroluminescence** from tunnel junctions)
- IT 89372-90-7
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)

(top monolayer; nanoscale organicelectroluminescence from tunnel junctions)

L65 ANSWER 14 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN

2004:1080997 Document No. 142:65002 Organicelectroluminescent devices and metal complex compounds. Nii, Kazumi; Watanabe, Kousuke; Igarashi, Tatsuya; Ichijima, Seiji; Ise, Toshihiro (Fuji Photo Film Co., Ltd., Japan). PCT Int. Appl. WO 2004108857 A1 20041216, 142 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-JP7882 20040601. PRIORITY: JP 2003-157006 20030602; JP 2004-92274 20040326.

IT 808111-97-9
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(organic electroluminescent devices using metal-polydentate ligand complexes)
RN 808111-97-9 HCAPLUS
CN Platinum, [(1-methylethylidene)bis[(6,2-pyridinediylkN)-2,1-phenylene-kC]]-, (SP-4-2)- (9CI) (CA INDEX NAME)



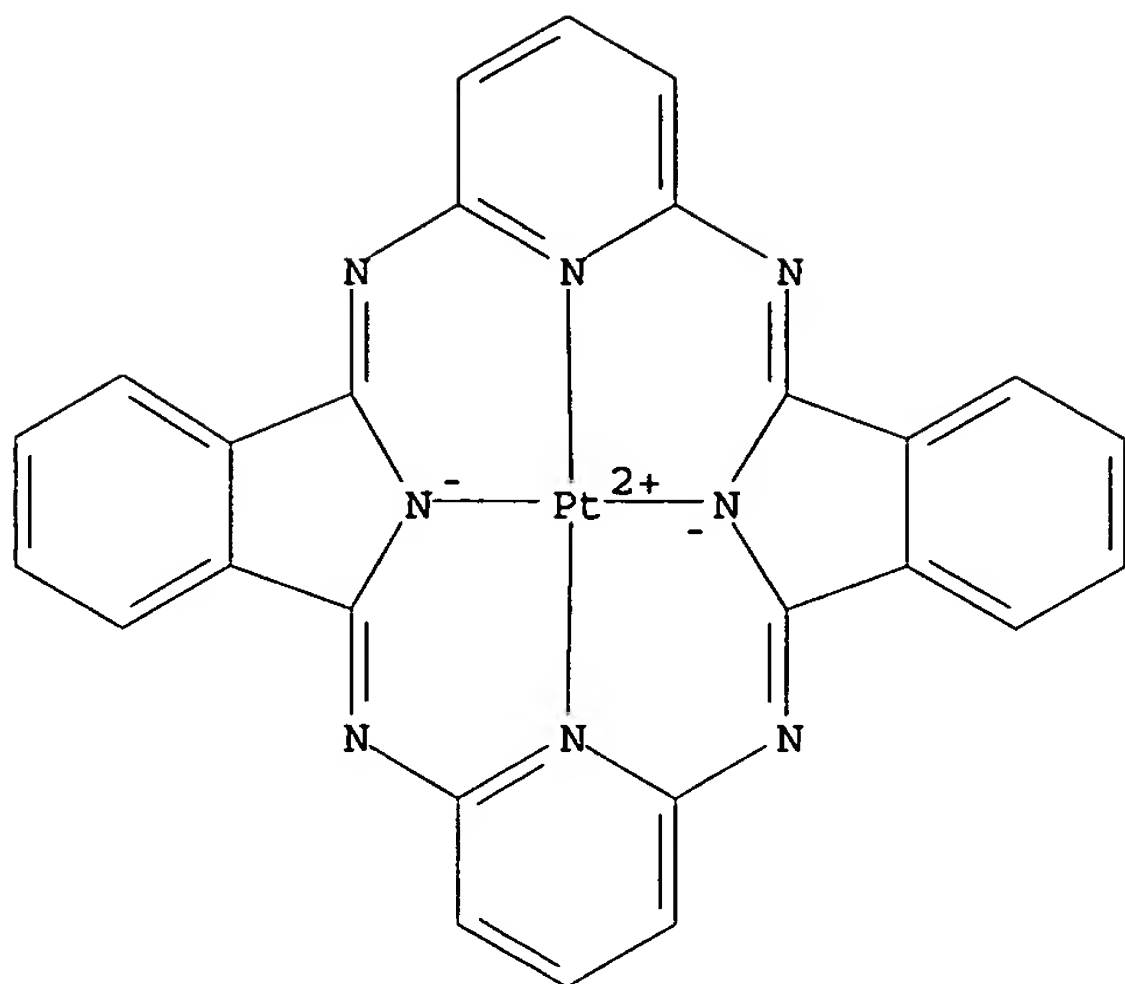
IC ICM C09K011-06
ICS H05B033-14; C07F015-00; C07D213-53; C07D213-74; C07D471-04; C07D207-20
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 29, 76
ST org electroluminescent device metal polydentate ligand complex; org electroluminescent device metal tridentate ligand complex; platinum complex polydentate ligand
IT Luminescent substances
(electroluminescent; organic electroluminescent devices using metal-polydentate ligand complexes)
IT Electroluminescent devices
(organic electroluminescent devices using metal-polydentate ligand complexes)
IT 58328-31-7 220694-90-6 808111-98-0
RL: DEV (Device component use); USES (Uses)
(host; organic electroluminescent devices using metal-polydentate ligand complexes)

- IT 7439-88-5D, Iridium, compds. with polydentate ligands 7440-05-3D, Palladium, compds. with polydentate ligands 7440-15-5D, Rhenium, compds. with polydentate ligands 7440-16-6D, Rhodium, compds. with polydentate ligands 7440-18-8D, Ruthenium, compds. with polydentate ligands 7440-50-8D, Copper, compds. with polydentate ligands
 RL: DEV (Device component use); USES (Uses)
 (organic **electroluminescent** devices using metal-polydentate ligand complexes)
- IT 138521-23-0 553677-67-1 553677-69-3808111-97-9
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (organic **electroluminescent** devices using metal-polydentate ligand complexes)
- IT 792909-89-8P
 RL: DEV (Device component use); MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (organic **electroluminescent** devices using metal-polydentate ligand complexes)
- IT 5720-06-9, 2-Methoxyphenylboronic acid 10025-65-7, Platinum dichloride 49669-22-9, 6,6'-Dibromo-2,2'-bipyridyl
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (organic **electroluminescent** devices using metal-polydentate ligand complexes)
- IT 156122-74-6P 156122-75-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (organic **electroluminescent** devices using metal-polydentate ligand complexes)

L65 ANSWER 15 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN

2004:996276 Document No. 141:429456 Organicelectroluminescent device and platinum compound. Igarashi, Tatsuya; Watanabe, Kousuke; Ichijima, Seiji; Ise, Toshihiro (Fuji Photo Film Co., Ltd., Japan). PCT Int. Appl. WO 2004099339 A1 20041118, 96 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-JP6498 20040507. PRIORITY: JP 2003-132257 20030509; JP 2004-88575 20040325.

- IT 794512-19-9P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (organic **electroluminescent** devices with organometallic compound-containing emitting layers and platinum compds.)
- RN 794512-19-9 HCAPLUS
- CN Platinum, [5,26:13,18-diimino-7,11:20,24-dinitrilodibenzo[c,n][1,6,12,17]tetraazacyclodocosinato(2-)-κN27,κN28,κN29,κN30]-, (SP-4-1)-(9CI) (CA INDEX NAME)



IC ICM C09K011-06
ICS H05B033-14; H05B033-22; C07D471-22; C07F015-00

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 29, 76

ST org **electroluminescent** device **organometallic**
compd emitting layer; platinum organometallic compd

IT Transition metal complexes
RL: DEV (Device component use); USES (Uses)
(heterocyclic compound; organic **electroluminescent** devices with organometallic compound-containing emitting layers and platinum compds.)

IT **Electroluminescent** devices
(organic; organic **electroluminescent** devices with organometallic compound-containing emitting layers and platinum compds.)

IT Heterocyclic compounds
RL: DEV (Device component use); USES (Uses)
(transition metal complexes; organic **electroluminescent** devices with organometallic compound-containing emitting layers and platinum compds.)

IT 7440-42-8D, Boron, compds.
RL: DEV (Device component use); USES (Uses)
(organic **electroluminescent** devices with organometallic compound-containing emitting layers and platinum compds.)

IT **794512-19-9P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(organic **electroluminescent** devices with organometallic compound-containing emitting layers and platinum compds.)

IT 141-86-6, 2,6-Diaminopyridine 3468-11-9 10025-65-7, Platinum dichloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(organic **electroluminescent** devices with organometallic compound-containing emitting layers and platinum compds.)

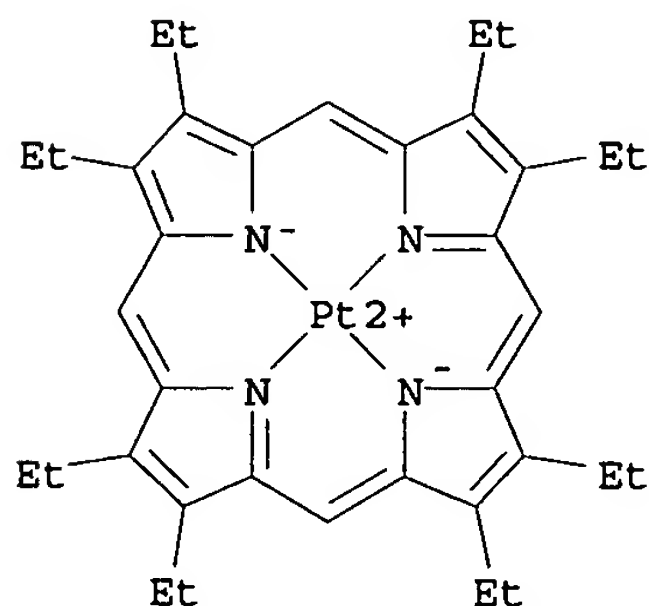
IT 343-44-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(organic electroluminescent devices with organometallic compound-containing emitting layers and platinum compds.)

L65 ANSWER 16 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2003:532033 Document No. 139:108427 **Light-emitting**
 devices containing a **multilayer** insulating film
 formed between a TFT and the **light-emitting**
 element, and method of manufacturing the devices. Murakami,
 Satoshi; Takayama, Toru; Akimoto, Kengo (Japan). U.S. Pat. Appl.
 Publ. US 2003127651 A1 20030710, 25 pp. (English). CODEN: USXXCO.
 APPLICATION: US 2002-329953 20021227. PRIORITY: JP 2001-398624
 20011227.

IT **31248-39-2**, 2, 3, 7, 8, 12, 13, 17, 18-Octaethyl-21H,
 23H-porphyrin-platinum
 RL: DEV (Device component use); MOA (Modifier or additive use); PEP
 (Physical, engineering or chemical process); PYP (Physical process);
 PROC (Process); USES (Uses)
 (luminescent dopant; **light-emitting** devices
 containing **multilayer** insulating film formed
 between TFT and **light-emitting** element, and
 method of manufacturing devices)

RN **31248-39-2** HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)-(9CI) (CA
 INDEX NAME)



IC ICM H01L027-15
 ICS H01L031-12; H01L023-62; H01L033-00; H01L031-153
 INCL 257072000; 257081000; 257084000; 313500000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 Section cross-reference(s): 76
 ST **light emitting** device fabrication package
multilayer insulating film
 IT Telephones
 (cellular; **light-emitting** devices containing
multilayer insulating film formed between TFT
 and **light-emitting** element and their use in)
 IT Electrooptical imaging devices
 (digital cameras; **light-emitting** devices
 containing **multilayer** insulating film formed
 between TFT and **light-emitting** element and
 their use in)
 IT Cameras
 (digital; **light-emitting** devices containing
multilayer insulating film formed between TFT

and light-emitting element and their use in)

IT Eyeglasses
(display; light-emitting devices containing
multilayer insulating film formed between TFT
and light-emitting element and their use in)

IT Electroluminescent devices
(displays; light-emitting devices containing
multilayer insulating film formed between TFT
and light-emitting element and their use as)

IT Etching
(dry; light-emitting devices containing
multilayer insulating film formed between TFT
and light-emitting element, and method of
manufacturing devices)

IT Luminescent screens
(electroluminescent; light-emitting
devices containing multilayer insulating film
formed between TFT and light-emitting element
and their use as)

IT Noble gases, uses
RL: NUU (Other use, unclassified); PEP (Physical, engineering or
chemical process); PYP (Physical process); PROC (Process); USES
(Uses)
(insulating film formed by sputtering in; light
-emitting devices containing multilayer
insulating film formed between TFT and light-
emitting element, and method of manufacturing devices)

IT Optical imaging devices
Video cameras
(light-emitting devices containing
multilayer insulating film formed between TFT
and light-emitting element and their use in)

IT Electroluminescent devices
Electronic packages
Electronic packaging process
Etching
Semiconductor device fabrication
Sputtering
(light-emitting devices containing
multilayer insulating film formed between TFT
and light-emitting element, and method of
manufacturing devices)

IT Acrylic polymers, uses
Polyamides, uses
Polyimides, uses
RL: DEV (Device component use); PEP (Physical, engineering or
chemical process); PYP (Physical process); PROC (Process); USES
(Uses)
(light-emitting devices containing
multilayer insulating film formed between TFT
and light-emitting element, and method of
manufacturing devices)

IT Films
(multilayer, insulating; light-
emitting devices containing multilayer insulating
film formed between TFT and light-
emitting element, and method of manufacturing devices)

IT Computers
(notebook; light-emitting devices containing
multilayer insulating film formed between TFT
and light-emitting element and their use in)

IT 124221-30-3

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (Benzocyclobutene; light-emitting devices containing multilayer insulating film formed between TFT and light-emitting element, and method of manufacturing devices)

IT 4733-39-5, Bathocuproin
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (carrier-blocking layer; light-emitting devices containing multilayer insulating film formed between TFT and light-emitting element, and method of manufacturing devices)

IT 2085-33-8, Alq3
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (electron-transporting layer; light-emitting devices containing multilayer insulating film formed between TFT and light-emitting element, and method of manufacturing devices)

IT 123847-85-8, α -NPD
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (hole-transporting layer; light-emitting devices containing multilayer insulating film formed between TFT and light-emitting element, and method of manufacturing devices)

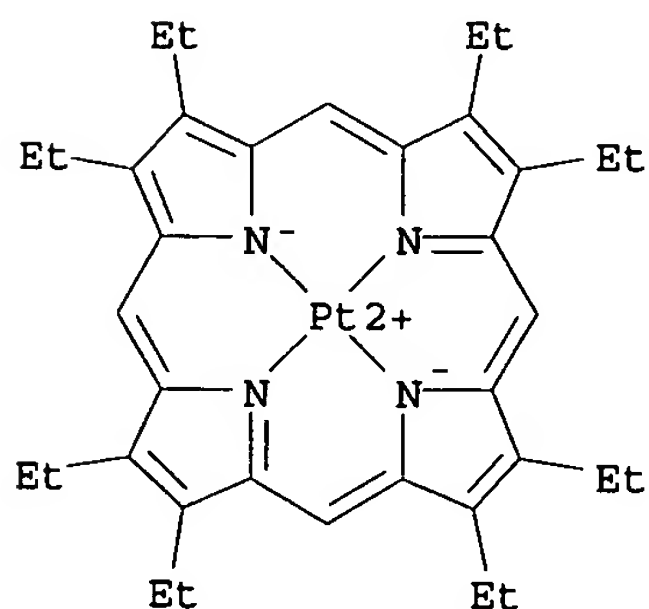
IT 7727-37-9, Nitrogen, processes
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
 (insulating film formed by sputtering in; light-emitting devices containing multilayer insulating film formed between TFT and light-emitting element, and method of manufacturing devices)

IT 7440-21-3, Silicon, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
 (insulating film formed by sputtering of; light-emitting devices containing multilayer insulating film formed between TFT and light-emitting element, and method of manufacturing devices)

IT 557113-74-3P, Silicon nitride (Si_{0.25}-0.35N_{0.35}-0.65)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PYP (Physical process); PREP (Preparation); PROC (Process); USES (Uses)
 (light-emitting devices containing multilayer insulating film formed between TFT and light-emitting element, and method of manufacturing devices)

IT 7440-33-7, Tungsten, uses 11105-01-4, Silicon oxide nitride 12033-62-4, Tantalum nitride (TaN)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (light-emitting devices containing multilayer insulating film formed between TFT and light-emitting element, and method of

- manufacturing devices)
- IT 31248-39-2, 2, 3, 7, 8, 12, 13, 17, 18-Octaethyl-21H, 23H-porphyrin-platinum 94928-86-6, Tris(2-phenylpyridine) iridium
 RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (luminescent dopant; light-emitting devices containing multilayer insulating film formed between TFT and light-emitting element, and method of manufacturing devices)
- IT 58328-31-7
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (luminescent doped layer; light-emitting devices containing multilayer insulating film formed between TFT and light-emitting element, and method of manufacturing devices)
- L65 ANSWER 17 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2003:406154 Document No. 139:170778 Transient electroluminescence spectroscopy of polyfluorene light-emitting diodes. Lupton, J. M.; Klein, J. (Max Planck Institute for Polymer Research, Mainz, D-55128, Germany). Synthetic Metals, 138(1-2), 233-236 (English) 2003. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science B.V..
- IT 31248-39-2, Platinum, 2,3,7,8,12,13,17,18-Octaethyl-21H,23H-porphyrin
 RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (polyfluorene emitting layer doped with; transient electroluminescence spectroscopy of polyfluorene light-emitting diodes)
- RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)- κ N21, κ N22, κ N23, κ N24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



- CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 36, 76
- ST transient electroluminescence polyfluorene light emitting diode trapping PLED
- IT Electric current carriers
 (dynamics and trapping; transient electroluminescence spectroscopy of polyfluorene light-emitting

diodes)

IT Luminescence, **electroluminescence**
(time-resolved, visible; transient **electroluminescence**
spectroscopy of polyfluorene **light-emitting**
diodes)

IT **Electroluminescent** devices
Trapping
(transient **electroluminescence** spectroscopy of
polyfluorene **light-emitting** diodes)

IT 188201-14-1, Poly[2,7-[9,9-bis(2-ethylhexyl)fluorene]]
RL: DEV (Device component use); PEP (Physical, engineering or
chemical process); PRP (Properties); PYP (Physical process); PROC
(Process); USES (Uses)
(doped emitting **layer**; transient
electroluminescence spectroscopy of polyfluorene
light-emitting diodes)

IT 7429-90-5, Aluminum, uses 7440-70-2, Calcium, uses 50926-11-9,
Indium tin oxide
RL: DEV (Device component use); USES (Uses)
(**electrode**; transient **electroluminescence**
spectroscopy of polyfluorene **light-emitting**
diodes)

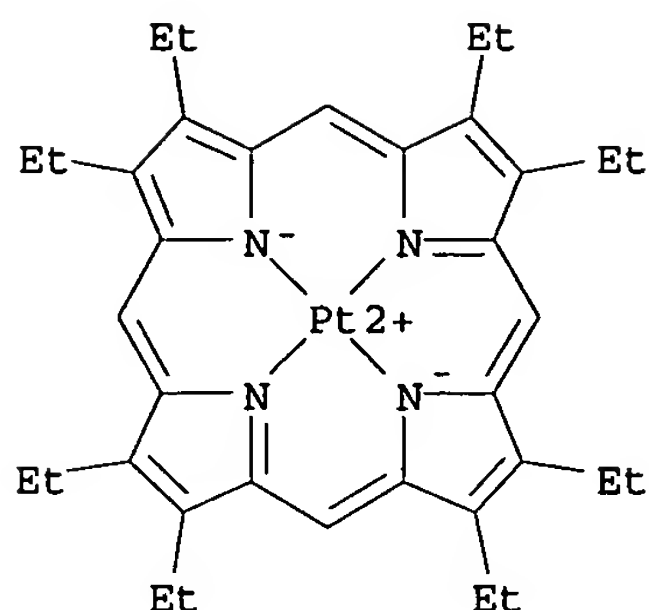
IT 50851-57-5 126213-51-2, Poly(3,4-ethylenedioxythiophene)
RL: DEV (Device component use); USES (Uses)
(hole-transporting **layer** containing; transient
electroluminescence spectroscopy of polyfluorene
light-emitting diodes)

IT 31248-39-2, Platinum, 2,3,7,8,12,13,17,18-Octaethyl-21H,23H-
porphyrin
RL: DEV (Device component use); MOA (Modifier or additive use); PRP
(Properties); USES (Uses)
(polyfluorene emitting **layer** doped with; transient
electroluminescence spectroscopy of polyfluorene
light-emitting diodes)

L65 ANSWER 18 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:373902 Document No. 138:392823 Red organic **light-**
emitting devices. Aziz, Hany; Hu, Nan-Xing; Popovic, Zoran
D.; Hor, Ah-Mee (Xerox Corporation, USA). Eur. Pat. Appl. EP
1311141 A1 20030514, 29 pp. DESIGNATED STATES: R: AT, BE, CH, DE,
DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI,
RO, MK, CY, AL, TR, BG, CZ, EE, SK. (English). CODEN: EPXXDW.
APPLICATION: EP 2002-25110 20021108. PRIORITY: US 2001-2001/5404
20011108.

IT 31248-39-2
RL: DEV (Device component use); USES (Uses)
(organic **light-emitting** devices with mixed
emitting **layers**)

RN 31248-39-2 HCAPLUS
CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
INDEX NAME)



IC ICM H05B033-14
ICS H05B033-12; H01L051-20

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74, 76

ST red org light emitting device mixed emitting layer; org light emitting device mixed emitting layer

IT Electroluminescent devices
(organic; organic light-emitting devices with mixed emitting layers)

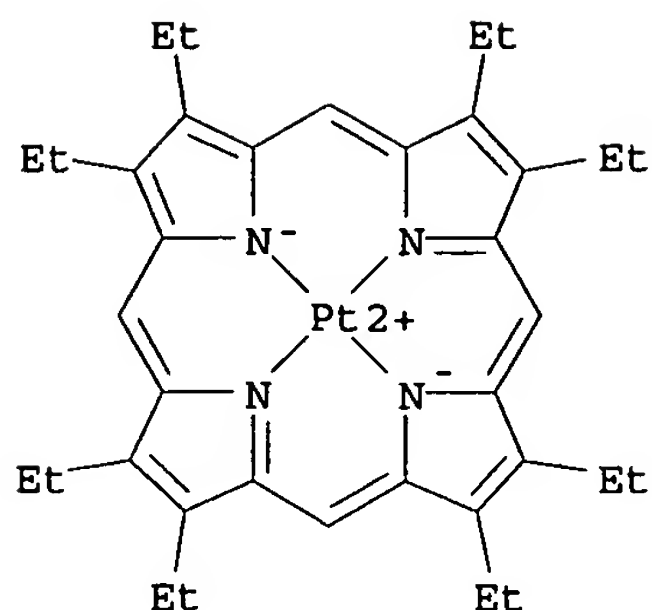
IT 2085-33-8, Tris(8-hydroxyquinoline)aluminum 7429-90-5, Aluminum, uses 31248-39-2 37271-44-6 50926-11-9, Indium tin oxide 123847-85-8, N,N'-Di(naphthalen-1-yl)-N,N'-diphenylbenzidine 134008-76-7
RL: DEV (Device component use); USES (Uses)
(organic light-emitting devices with mixed emitting layers)

L65 ANSWER 19 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:373895 Document No. 138:392821 Organiclight emitting devices. Aziz, Hany; Hu, Nan-Xing; Hor, Ah-Mee; Popovic, Zoran D. (Xerox Corporation, USA). Eur. Pat. Appl. EP 1311009 A2 20030514, 31 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2002-25109 20021108. PRIORITY: US 2001-5930 20011108.

IT 31248-39-2
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(organic light-emitting devices)

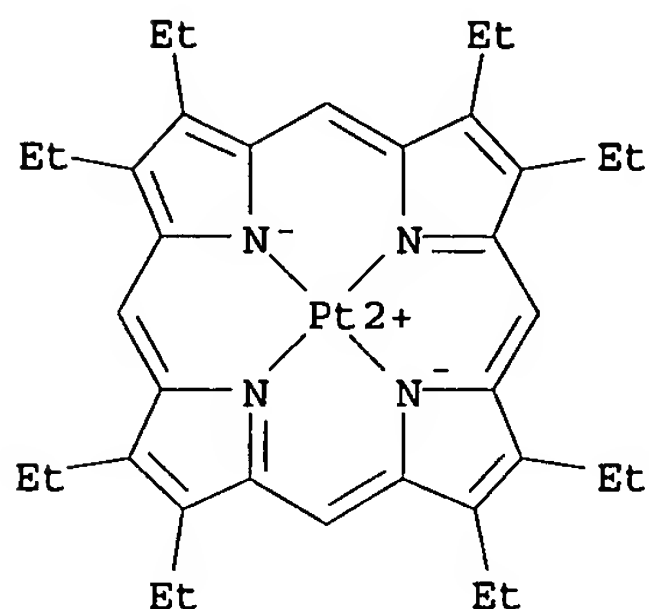
RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)

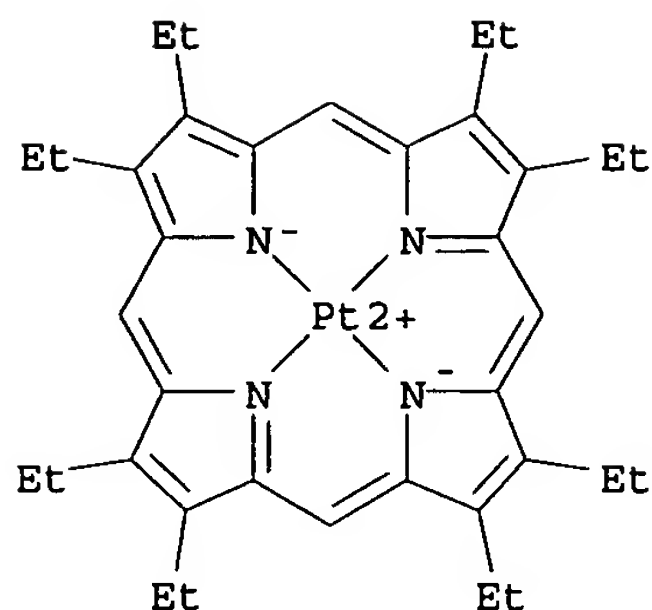


- IC ICM H01L051-20
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 74, 76
 ST org light emitting device
 IT Polyenes
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (conjugated; organic light-emitting devices)
 IT Rare earth compounds
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (organic light-emitting devices)
 IT 147-14-8, Copper phthalocyanine 2085-33-8, Tris(8-hydroxyquinoline)aluminum 31274-51-8 123847-85-8, N,N'-Di(naphthalen-1-yl)-N,N'-diphenylbenzidine 134008-76-7 166036-16-4 166036-17-5 221544-72-5 221544-76-9 266349-83-1 266349-84-2 266349-85-3 266349-86-4 336624-16-9 444716-92-1
 RL: DEV (Device component use); USES (Uses)
 (organic light-emitting devices)
 IT 85-01-8, Phenanthrene, uses 91-64-5, Coumarin 92-83-1, Xanthene 106-99-0, Butadiene, uses 120-12-7, Anthracene, uses 129-00-0, Pyrene, uses 191-07-1, Coronene 198-55-0, Perylene 289-67-8, Pyrylium 517-51-1, Rubrene 578-95-0, Acridone 588-59-0, Stilbene 1047-16-1, Quinacridone 19205-19-7, N,N'-Dimethylquinacridone 31248-39-2 155306-71-1 200052-70-6
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (organic light-emitting devices)
 L65 ANSWER 20 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2003:356106 Document No. 138:360215 Organic electroluminescence element. Tsuji, Taishi; Miyaguchi, Satoshi; Wakimoto, Takeo (Pioneer Corporation, Japan). Eur. Pat. Appl. EP 1308494 A2 20030507, 50 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2002-257505 20021029. PRIORITY: JP 2001-334325 20011031.
 IT 31248-39-2
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (organic electroluminescent elements with guest-host emitting layers and hole transport layers with lower ionization potentials than the hosts)

RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
 INDEX NAME)

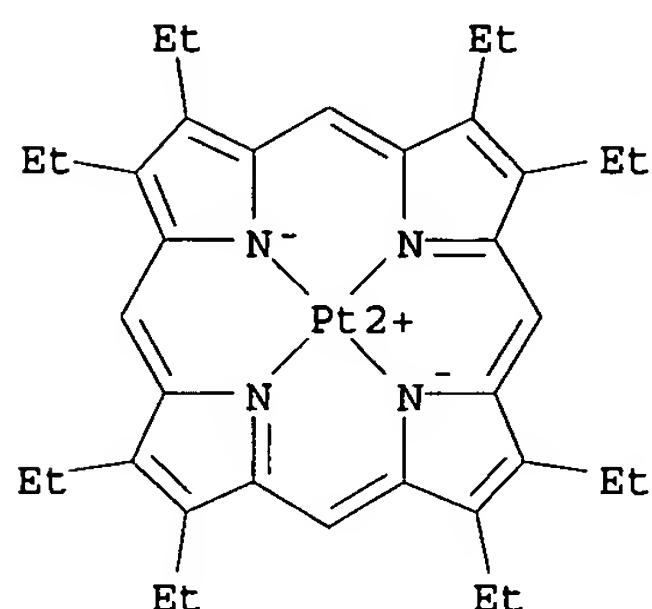


IC ICM C09K011-06
 ICS H05B033-14; H01L051-20
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 Section cross-reference(s): 76
 ST org **electroluminescent** device guest host emitting
 layer
 IT **Electroluminescent** devices
 (organic; organic **electroluminescent** elements with guest-host
 emitting **layers** and hole transport **layers**
 with lower ionization potentials than the hosts)
 IT 123847-85-8 146162-54-1 207514-97-4
 RL: DEV (Device component use); USES (Uses)
 (organic **electroluminescent** elements with guest-host
 emitting **layers** and hole transport **layers**
 with lower ionization potentials than the hosts)
 IT 31248-39-2
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (organic **electroluminescent** elements with guest-host
 emitting **layers** and hole transport **layers**
 with lower ionization potentials than the hosts)
 L65 ANSWER 21 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2003:355664 Document No. 138:376116 **Organiclight**
emitting devices. Aziz, Hany; Hu, Nan-Xing; Vong, Cuong;
 Hor, Ah-Mee; Popovic, Zoran D. (Xerox Corporation, USA). U.S. Pat.
 Appl. Publ. US 2003087125 A1 20030508, 21 pp. (English). CODEN:
 USXXCO. APPLICATION: US 2001-5993 20011108.
 IT 31248-39-2
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (organic **light-emitting** devices with
light-emitting regions comprising mixts. containing
 N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine)
 RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
 INDEX NAME)



IC ICM H05B033-12
 INCL 428690000; 428917000; 428213000; 428332000; 313504000; 313506000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76
 ST org light emitting device mixed active region
 IT Polyenes
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (conjugated; organic light-emitting devices with light-emitting regions comprising mixts. containing N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine)
 IT Rare earth complexes
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (organic light-emitting devices with light-emitting regions comprising mixts. containing N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine)
 IT Electroluminescent devices
 (organic; organic light-emitting devices with light-emitting regions comprising mixts. containing N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine)
 IT 147-14-8, Copper phthalocyanine 2085-33-8, Tris(8-hydroxyquinoline)aluminum 7429-90-5, Aluminum, uses 7439-95-4, Magnesium, uses 7440-22-4, Silver, uses 31274-51-8 50926-11-9, Indium tin oxide 134008-76-7 166036-16-4 166036-17-5 221544-72-5 221544-76-9 224785-36-8 266349-83-1 266349-84-2 266349-85-3 266349-86-4 336624-16-9
 RL: DEV (Device component use); USES (Uses)
 (organic light-emitting devices with light-emitting regions comprising mixts. containing N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine)
 IT 59-31-4, Carbostyryl 85-01-8, Phenanthrene, uses 91-64-5, Coumarin 92-83-1, Xanthene 106-99-0, Butadiene, uses 120-12-7, Anthracene, uses 129-00-0, Pyrene, uses 191-07-1, Coronene 198-55-0, Perylene 289-67-8, Pyrylium 517-51-1, Rubrene 578-95-0, Acridone 588-59-0, Stilbene 1047-16-1, Quinacridone 1470-04-8 1884-65-7, Dicyanomethylene 19205-19-7, N,N'-Dimethylquinacridone 31248-39-2 94928-86-6, Fac-Tris(2-phenylpyridine)iridium 155306-71-1 200052-70-6 521964-62-5
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (organic light-emitting devices with light-emitting regions comprising mixts. containing N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine)

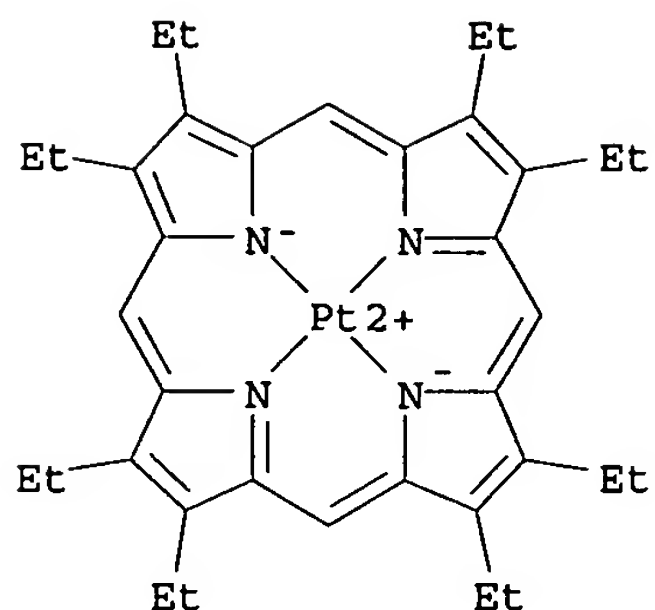
L65 ANSWER 22 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:334266 Document No. 138:360456 **Light emitting**
device. Yamazaki, Shunpei; Konuma, Toshimitsu; Yamazaki, Hiroko
(Semiconductor Energy Laboratory Co., Ltd., Japan). U.S. Pat. Appl.
Publ. US 2003080338 A1 20030501, 38 pp. (English). CODEN: USXXCO.
APPLICATION: US 2002-278855 20021024. PRIORITY: JP 2001-330022
20011026.
IT **31248-39-2**
RL: DEV (Device component use); USES (Uses)
(**luminescent layer; light emitting**
device having damage preventing protector)
RN 31248-39-2 HCAPLUS
CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
INDEX NAME)



IC ICM H01L029-04
INCL 257059000
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
Section cross-reference(s): 73, 76
ST **light emitting** device active matrix protector
IT **Electroluminescent** devices
(displays; **light emitting** device having
damage preventing protector)
IT Luminescent screens
(**electroluminescent; light emitting**
device having damage preventing protector)
IT Optical memory devices
(recording; **light emitting** device having
damage preventing protector for)
IT Silicate glasses
RL: DEV (Device component use); USES (Uses)
(substrate; **light emitting** device having
damage preventing protector)
IT 11105-01-4, Silicon oxynitride 12033-89-5, Silicon nitride, uses
12633-97-5, Aluminum nitride oxide 24304-00-5, Aluminum nitride
RL: DEV (Device component use); USES (Uses)
(**barrier film; light emitting**
device having damage preventing protector)
IT 4733-39-5, Bathocuproine
RL: DEV (Device component use); USES (Uses)
(**blocking layer; light emitting**
device having damage preventing protector)
IT 7440-33-7, Tungsten, uses
RL: TEM (Technical or engineered material use); USES (Uses)

(conductive film; light emitting device having damage preventing protector)
 IT 7440-38-2, Arsenic, uses 7723-14-0, Phosphorus, uses
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (conductive layers containing; light emitting device having damage preventing protector)
 IT 2085-33-8, AlQ3
 RL: DEV (Device component use); USES (Uses)
 (electron transportation layer; light emitting device having damage preventing protector)
 IT 12033-62-4, Tantalum nitride (TaN)
 RL: TEM (Technical or engineered material use); USES (Uses)
 (etching film; light emitting device having damage preventing protector)
 IT 147-14-8, Copper phthalocyanine
 RL: DEV (Device component use); USES (Uses)
 (hole injection layer; light emitting device having damage preventing protector)
 IT 123847-85-8, α -NPD
 RL: DEV (Device component use); USES (Uses)
 (hole transportation layer; light emitting device having damage preventing protector)
 IT 58328-31-7 94928-86-6, Tris(2-phenylpyridine)iridium
 RL: DEV (Device component use); USES (Uses)
 (light emitting layer; light emitting device having damage preventing protector)
 IT 31248-39-2
 RL: DEV (Device component use); USES (Uses)
 (luminescent layer; light emitting device having damage preventing protector)
 IT 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-57-5, Gold, uses
 RL: DEV (Device component use); USES (Uses)
 (protector; light emitting device having damage preventing protector)

L65 ANSWER 23 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2003:259839 Document No. 138:278191 **Light-emitting**
 device having anode based on transition metals, their nitrides or carbides and methods of manufacturing the devices. Seo, Satoshi; Nakamura, Yasuo (Semiconductor Energy Laboratory Co., Ltd., Japan). Eur. Pat. Appl. EP 1298736 A2 20030402, 40 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2002-21803 20020926. PRIORITY: JP 2001-304600 20010928.
 IT 31248-39-2, 2,3,7,8,12,13,17,18-Octaethyl-21H,23H-porphyrin-platinum
 RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (-doped CBP light-emitting layer; light-emitting device having anode based on transition metals, their nitrides or carbides and methods of manufacturing devices)
 RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)- κ N21, κ N22, κ N23, κ N24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IC ICM H01L051-20
ICS H01L027-00

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 56, 76, 78

ST **electroluminescent** device fabrication display
anode transition metal nitride carbide; **OLED**
manufg UV ozone treatment plasma

IT Transition metal nitrides
RL: DEV (Device component use); USES (Uses)
(Group VIB element, **anode**; **light-emitting** device having **anode** based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT Ozonization
UV radiation
(**anode** surface subjected to UV ozone treatment;
light-emitting device having **anode** based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT Plasma
(**anode** surface subjected to plasma treatment;
light-emitting device having **anode** based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT Group IVB element carbides
Group IVB elements
Group VB element carbides
Group VB elements
Group VIB element carbides
Group VIB elements
Transition metal nitrides
RL: DEV (Device component use); USES (Uses)
(**anode**; **light-emitting** device having **anode** based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT **Electroluminescent** devices
(displays; **light-emitting** device having **anode** based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT Thin **film** transistors
(**electroluminescent** device employing; **light-emitting** device having **anode** based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT Luminescent screens

(electroluminescent; light-emitting device having anode based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT **Anodes**
 Electroluminescent devices
 Electronic device fabrication
 (light-emitting device having anode based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT Group IVB element compounds
 Group VB element compounds
 Group VIB element compounds
 RL: DEV (Device component use); USES (Uses)
 (nitrides, anode; light-emitting device having anode based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT Surface treatment
 (plasma or UV ozone; light-emitting device having anode based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT 31248-39-2, 2,3,7,8,12,13,17,18-Octaethyl-21H,23H-porphyrin-platinum 94928-86-6, Tris(2-phenylpyridine)iridium
 RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (-doped CBP light-emitting layer; light-emitting device having anode based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT 12070-06-3, Tantalum carbide 12070-08-5, Titanium carbide
 12070-14-3, Zirconium carbide 12627-57-5, Molybdenum carbide
 25658-42-8, Zirconium nitride 37245-81-1, Molybdenum nitride
 RL: DEV (Device component use); USES (Uses)
 (anode; light-emitting device having anode based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT 12033-62-4, Tantalum nitride 25583-20-4, Titanium nitride
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
 (anode; light-emitting device having anode based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT 4733-39-5, Bathocuproine
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (blocking layer; light-emitting device having anode based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT 7429-90-5, Aluminum, uses 7440-46-2, Cesium, uses 7789-75-5, Calcium fluoride, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (cathode layer; light-emitting device having anode based on transition metals, their nitrides or carbides and methods of manufacturing devices)

IT 58328-31-7, 4,4'-Biscarbazolylbiphenyl
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

- (Uses)
(doped **light-emitting layer**;
light-emitting device having **anode**
based on transition metals, their nitrides or carbides and
methods of manufacturing devices)
- IT 2085-33-8, Alq3
RL: DEV (Device component use); PEP (Physical, engineering or
chemical process); PYP (Physical process); PROC (Process); USES
(Uses)
(electron-transporting **layer**; **light-**
emitting device having **anode** based on
transition metals, their nitrides or carbides and methods of
manufacturing devices)
- IT 147-14-8, Copper phthalocyanine
RL: DEV (Device component use); PEP (Physical, engineering or
chemical process); PYP (Physical process); PROC (Process); USES
(Uses)
(hole-injection **layer**; **light-emitting**
device having **anode** based on transition metals, their
nitrides or carbides and methods of manufacturing devices)
- IT 50851-57-5, Polystyrenesulfonic acid 126213-51-2, Poly
(3,4-ethylene dioxythiophene)
RL: DEV (Device component use); PEP (Physical, engineering or
chemical process); PYP (Physical process); PROC (Process); USES
(Uses)
(hole-transporting **layer** containing; **light-**
emitting device having **anode** based on
transition metals, their nitrides or carbides and methods of
manufacturing devices)
- IT 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl
RL: DEV (Device component use); PEP (Physical, engineering or
chemical process); PYP (Physical process); PROC (Process); USES
(Uses)
(hole-transporting **layer**; **light-**
emitting device having **anode** based on
transition metals, their nitrides or carbides and methods of
manufacturing devices)
- IT 26009-24-5, Poly(p-phenylene vinylene)
RL: DEV (Device component use); PEP (Physical, engineering or
chemical process); PYP (Physical process); PROC (Process); USES
(Uses)
(**light-emitting layer**;
light-emitting device having **anode**
based on transition metals, their nitrides or carbides and
methods of manufacturing devices)
- IT 7440-33-7, Tungsten, properties
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(work function of, **anode**; **light-**
emitting device having **anode** based on
transition metals, their nitrides or carbides and methods of
manufacturing devices)
- IT 50926-11-9, Indium tin oxide
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(work function of, reference **anode**; **light-**
emitting device having **anode** based on
transition metals, their nitrides or carbides and methods of
manufacturing devices)

L65 ANSWER 24 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:222194 Document No. 138:262467 Organic electroluminescent
devices employing a luminescent **layer** formed by doping a
phosphor material on an aluminum complex as host material. Oh,

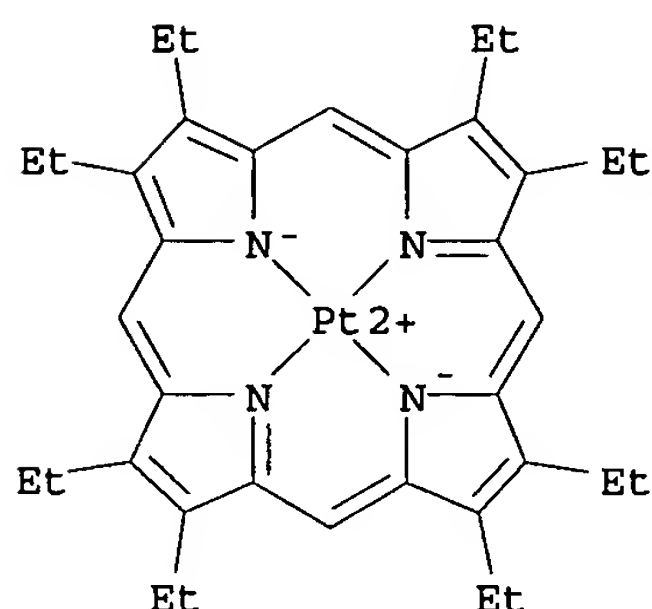
Hyoung Yun (LG Electronics Inc., S. Korea). U.S. Pat. Appl. Publ.
US 2003054199 A1 20030320, 7 pp. (English). CODEN: USXXCO.
APPLICATION: US 2002-233434 20020904. PRIORITY: KR 2001-54789
20010906.

IT 31248-39-2

RL: DEV (Device component use); MOA (Modifier or additive use); PEP
(Physical, engineering or chemical process); PRP (Properties); PYP
(Physical process); PROC (Process); USES (Uses)
(phosphor; organic electroluminescent devices employing
luminescent layer formed by doping phosphor material on
aluminum complex as host material)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
INDEX NAME)



IC ICM H05B033-14

INCL 428690000; 428917000; 313504000; 313506000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

Section cross-reference(s): 76, 78

ST org electroluminescent device phosphor doped aluminum
complex host; OLED phosphor doped host aluminum
quinolinolato deriv complex

IT Amines, uses

RL: DEV (Device component use); USES (Uses)
(aromatic, tri-Ph amine derivs. as hole-transporting layer
; organic electroluminescent devices employing
luminescent layer formed by doping phosphor material on
aluminum complex as host material and)

IT Alkali metal compounds

RL: DEV (Device component use); USES (Uses)
(electron injection layer; organic
electroluminescent devices employing luminescent
layer formed by doping phosphor material on aluminum
complex as host material and)

IT Electroluminescent devices

(organic electroluminescent devices employing luminescent
layer formed by doping phosphor material on aluminum
complex as host material)

IT 2085-33-8, Alq3

RL: DEV (Device component use); PEP (Physical, engineering or
chemical process); PRP (Properties); PYP (Physical process); PROC
(Process); USES (Uses)
(electron-transporting layer; organic
electroluminescent devices employing luminescent

layer formed by doping phosphor material on aluminum complex as host material and)

IT 147-14-8, Copper(II)Phthalocyanine
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (hole-injection layer; organic electroluminescent devices employing luminescent layer formed by doping phosphor material on aluminum complex as host material and)

IT 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (hole-transporting layer; organic electroluminescent devices employing luminescent layer formed by doping phosphor material on aluminum complex as host material and)

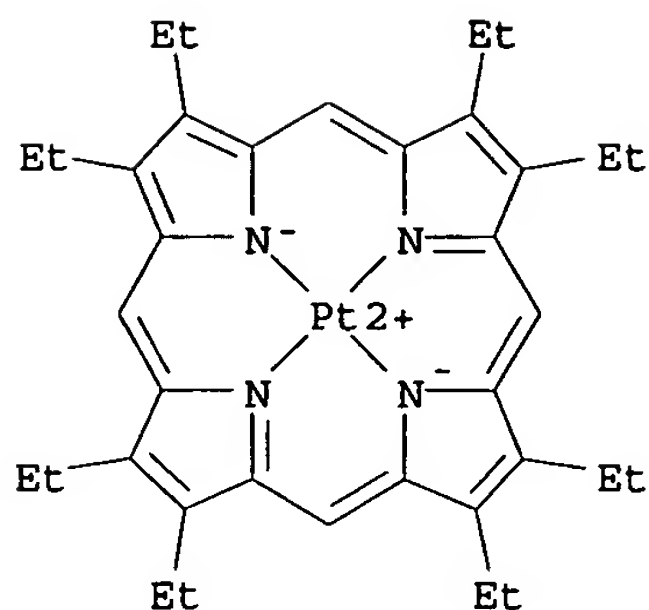
IT 71-43-2, Benzene, uses 85-01-8, Phenanthrene, uses 91-20-3, Naphthalene, uses 16842-52-7 16984-48-8, Fluoride, uses 24959-67-9, Bromide, uses 31280-10-1
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (organic electroluminescent devices employing luminescent layer formed by doping phosphor material on aluminum complex as host material)

IT 31248-39-2
 RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
 (phosphor; organic electroluminescent devices employing luminescent layer formed by doping phosphor material on aluminum complex as host material)

L65 ANSWER 25 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2003:77230 Document No. 138:144819 **Light-emitting** device and manufacturing method thereof. Seo, Satoshi; Shitagaki, Satoko (Semiconductor Energy Laboratory Co., Ltd., Japan). U.S. Pat. Appl. Publ. US 2003020088 A1 20030130, 26 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-189439 20020708. PRIORITY: JP 2001-213139 20010713.

IT 31248-39-2, 2,3,7,8,12,13,17,18-Octaethyl-21H,23H-porphyrin platinum
 RL: DEV (Device component use); USES (Uses)
 (phosphor; light-emitting device and method of fabrication using polymers)

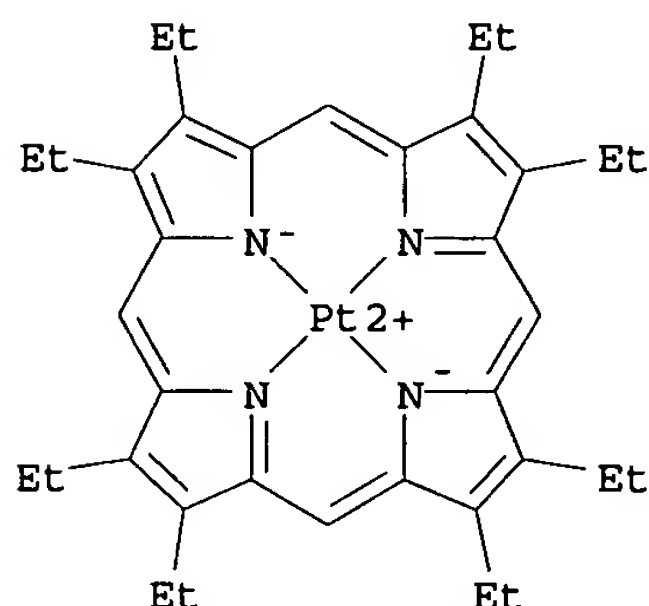
RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)-(9CI) (CA INDEX NAME)



IC ICM H01L033-00
 INCL 257103000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 38, 76
 ST **light emitting** device fabrication
 IT **Electroluminescent** devices
 Electronic device fabrication
 (light-emitting device and method of fabrication using polymers)
 IT 50926-11-9, Indium tin oxide
 RL: DEV (Device component use); USES (Uses)
 (anode; light-emitting device and method of fabrication using polymers)
 IT 91-22-5D, Quinoline, aluminum complex
 RL: DEV (Device component use); USES (Uses)
 (electron transport layer; light-emitting device and method of fabrication using polymers)
 IT 2085-33-8, Alq3 4733-39-5
 RL: DEV (Device component use); USES (Uses)
 (electron transport; light-emitting device and method of fabrication using polymers)
 IT 94928-86-6
 RL: DEV (Device component use); USES (Uses)
 (green light phosphor; light-emitting device and method of fabrication using polymers)
 IT 25190-62-9D, Poly(1,4-phenylene), dialkoxy derivs.
 RL: DEV (Device component use); USES (Uses)
 (high polymer; light-emitting device and method of fabrication using polymers)
 IT 66-71-7D, 1,10-Phenanthroline, derivative 288-99-3D, 1,3,4-Oxadiazole, derivative
 RL: DEV (Device component use); USES (Uses)
 (hole blocking; light-emitting device and method of fabrication using polymers)
 IT 95-16-9D, Benzothiazole, zinc complex 288-88-0D, 1H-1,2,4-Triazole, derivative 14054-87-6 25067-59-8 49718-51-6, Poly(4-styrenesulfonate) 126213-51-2, PEDOT
 RL: DEV (Device component use); USES (Uses)
 (light-emitting device and method of fabrication using polymers)
 IT 3073-05-0D, dialkoxy derivs.
 RL: DEV (Device component use); USES (Uses)
 (low polymer; light-emitting device and method of fabrication using polymers)
 IT 120-12-7, Anthracene, uses 129-00-0, Pyrene, uses 198-55-0,

Perylene 517-51-1, Rubrene 1450-63-1, 1,1,4,4-Tetraphenyl-1,3-butadiene 1499-10-1, 9,10-Diphenylanthracene 7385-67-3, Nile Red 19205-19-7, N,N'-Dimethyl-quinacridone 31248-39-2, 2,3,7,8,12,13,17,18-Octaethyl-21H,23H-porphyrin platinum 38215-36-0, Coumarin 6 51325-91-8, 4-Dicyanomethylene-2-methyl-6-(p-dimethylamino-styryl)-4H-pyran 51325-95-2 123847-85-8, 4,4'-Bis(N-(1-naphthyl)-N-phenyl-amino)-biphenyl
 RL: DEV (Device component use); USES (Uses)
 (phosphor; light-emitting device and method of fabrication using polymers)

L65 ANSWER 26 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2002:978539 Document No. 138:47453 Method of making full color display panels. Haase, Michael Albert; Baude, Paul Frederic; Williams, Robert Carnes (3M Innovative Properties Company, USA). U.S. Pat. Appl. Publ. US 2002195929 A1 20021226, 9 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-886447 20010621.
 IT 31248-39-2
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (red dopant; method of fabricating full color display panels)
 RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



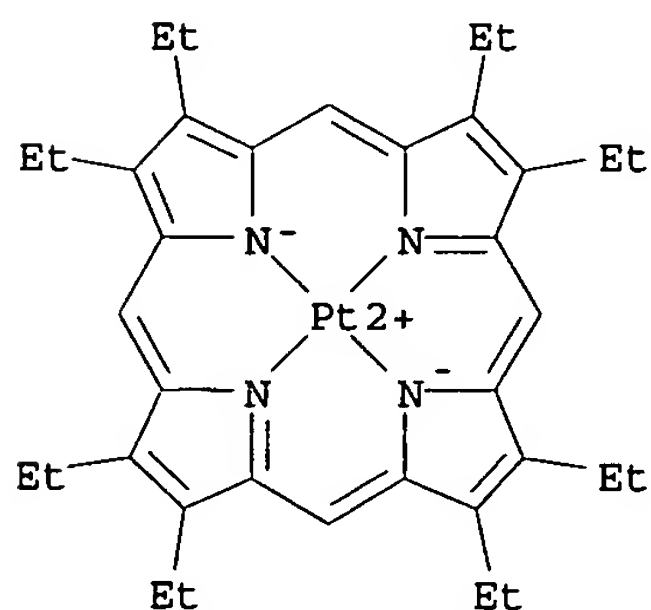
IC ICM H05B033-14
 INCL 313504000
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 76
 ST color display panel light emitting pixel fabrication
 IT Electroluminescent devices
 (displays; method of fabricating full color display panels)
 IT Luminescent screens
 (electroluminescent; method of fabricating full color display panels)
 IT 7789-24-4, Lithium fluoride (LiF), uses
 RL: DEV (Device component use); USES (Uses)
 (cathode; method of fabricating full color display panels)
 IT 50926-11-9, Indium tin oxide
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (coating on substrate; method of fabricating full color

display panels)
 IT 146162-54-1
 RL: DEV (Device component use); USES (Uses)
 (electron transporting layer; method of fabricating
 full color display panels)
 IT 123847-85-8, NPD
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (hole transporting layer; method of fabricating full
 color display panels)
 IT 31248-39-2
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (red dopant; method of fabricating full color display panels)

L65 ANSWER 27 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2002:927959 Document No. 138:18150 Display devices with
 organic-metal mixed layer. Aziz, Hany; Liew,
 Yoon-fei; Popovic, Zoran D.; Hu, Nan-xing; Paine, Anthony J. (Xerox
 Corporation, USA). U.S. Pat. Appl. Publ. US 2002180349 A1 20021205,
 35 pp., Cont.-in-part of U. S. Ser. No. 800,716, abandoned.
 (English). CODEN: USXXCO. APPLICATION: US 2002-117812 20020405.
 PRIORITY: US 2001-2001/800716 20010308.

IT 31248-39-2
 RL: TEM (Technical or engineered material use); USES (Uses)
 (display devices with organic-metal mixed layer
 containing)

RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)-(9CI) (CA
 INDEX NAME)



IC ICM H05B033-00
 INCL 313506000
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 ST Light emitting display device org
 metal mixed layer
 IT Electroluminescent devices
 (display devices with organic-metal mixed layer)
 IT 7440-58-6, Hafnium, uses
 RL: DEV (Device component use); USES (Uses)
 (display devices with organic-metal mixed layer)
 IT 2085-33-8, Tris(8-hydroxyquinoline)aluminum 7429-90-5, Aluminum,
 uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-91-0,
 Lanthanum, uses 7439-92-1, Lead, uses 7439-93-2, Lithium, uses

7439-95-4, Magnesium, uses 7439-98-7, Molybdenum, uses
 7440-00-8, Neodymium, uses 7440-02-0, Nickel, uses 7440-03-1,
 Niobium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses
 7440-06-4, Platinum, uses 7440-09-7, Potassium, uses 7440-16-6,
 Rhodium, uses 7440-17-7, Rubidium, uses 7440-18-8, Ruthenium,
 uses 7440-19-9, Samarium, uses 7440-20-2, Scandium, uses
 7440-22-4, Silver, uses 7440-23-5, Sodium, uses 7440-24-6,
 Strontium, uses 7440-25-7, Tantalum, uses 7440-26-8, Technetium,
 uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7,
 Tungsten, uses 7440-36-0, Antimony, uses 7440-39-3, Barium, uses
 7440-41-7, Beryllium, uses 7440-42-8, Boron, uses 7440-43-9,
 Cadmium, uses 7440-45-1, Cerium, uses 7440-46-2, Cesium, uses
 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8,
 Copper, uses 7440-53-1, Europium, uses 7440-55-3, Gallium, uses
 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7440-65-5,
 Yttrium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses
 7440-69-9, Bismuth, uses 7440-70-2, Calcium, uses 7440-74-6,
 Indium, uses 7782-49-2, Selenium, uses 7789-24-4, Lithium
 fluoride, uses 13494-80-9, Tellurium, uses

RL: DEV (Device component use); USES (Uses)
 (display devices with organic-metal mixed layer
 containing)

IT 147-14-8, Copper Phthalocyanine 25233-34-5, Polythiophene
 31248-39-2 50926-11-9, Indium-Tin-Oxide 65181-78-4,
 N,N'-Diphenyl-N,N'-bis(3-methylphenyl)-1,1'-biphenyl-4,4'-diamine
 123847-85-8 155306-71-1 221544-76-9 266349-83-1

RL: TEM (Technical or engineered material use); USES (Uses)
 (display devices with organic-metal mixed layer
 containing)

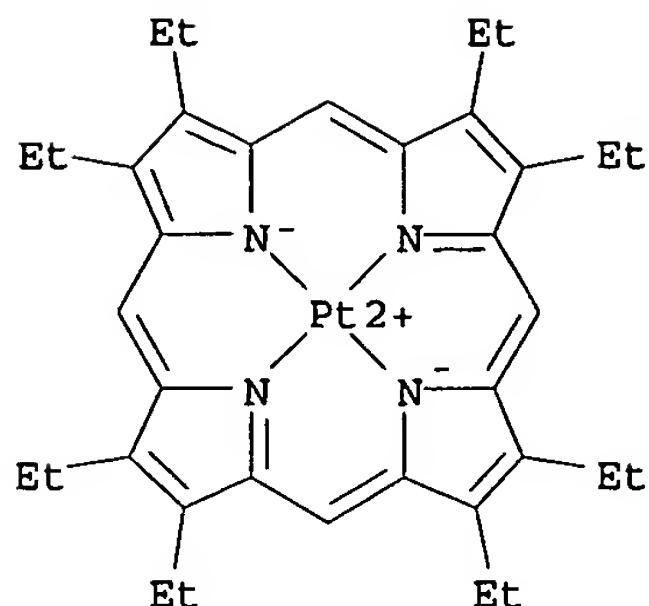
L65 ANSWER 28 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN

2002:925426 Document No. 138:9521 **Electroluminescent**
film device. Nakayama, Takahiro; Aratani, Sukekazu
 (Hitachi, Ltd., Japan). Eur. Pat. Appl. EP 1263061 A2 20021204, 11
 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT,
 LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR.
 (English). CODEN: EPXXDW. APPLICATION: EP 2001-120626 20010829.
 PRIORITY: JP 2001-161057 20010529.

IT 31248-39-2
 RL: DEV (Device component use); USES (Uses)
 (light-emitting layer;
 electroluminescent film device using bonded
 heavy metals)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
 INDEX NAME)



IC ICM H01L051-20
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76
 ST **electroluminescent film** iridium platinum
 IT Aluminoborosilicate glasses
 RL: DEV (Device component use); USES (Uses)
 (alkaline earth aluminoborosilicate, corning 1737;
electroluminescent film device using bonded heavy metals)
 IT **Electroluminescent devices**
Films
 (electroluminescent film device using bonded heavy metals)
 IT 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline
 RL: DEV (Device component use); USES (Uses)
 (buffer layer; **electroluminescent film** device using bonded heavy metals)
 IT 7429-90-5, Aluminum, uses
 RL: DEV (Device component use); USES (Uses)
 (electrode; **electroluminescent film** device using bonded heavy metals)
 IT 2085-33-8, AlQ3 7789-24-4, Lithium fluoride (LiF), uses
 50926-11-9, Indium tin oxide
 RL: DEV (Device component use); USES (Uses)
 (electroluminescent film device using bonded heavy metals)
 IT 123847-85-8, NPB
 RL: DEV (Device component use); USES (Uses)
 (hole-injecting layer; **electroluminescent film** device using bonded heavy metals)
 IT 31248-39-2 58328-31-7 94928-86-6
 RL: DEV (Device component use); USES (Uses)
 (light-emitting layer; **electroluminescent film** device using bonded heavy metals)
 L65 ANSWER 29 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2002:830080 Document No. 137:330889 MOCVD, its apparatus,
electroluminescent devices manufactured thereby, and
 displays therewith. Yamazaki, Shunpei; Seo, Satoshi; Shibata,
 Noriko (Semiconductor Energy Laboratory Co., Ltd., Japan). Jpn.
 Kokai Tokkyo Koho JP 2002317262 A2 20021031, 31 pp. (Japanese).
 CODEN: JKXXAF. APPLICATION: JP 2002-23528 20020131. PRIORITY: JP
 2001-32997 20010208.
 IT 31248-39-2, 2,3,7,8,12,13,17,18-Octaethyl-21H,

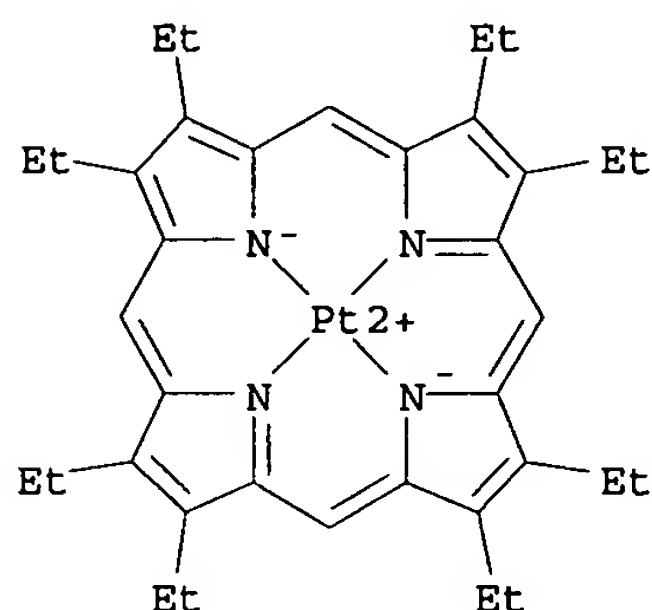
23H-porphyrinplatinum

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(emitting layers; MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IC ICM C23C014-24

ICS C23C014-12; H05B033-10; H05B033-14

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74, 75, 76

ST metalorg CVD electroluminescent multilayer

source mixing; carrier injection improved electroluminescent device CVD

IT Electroluminescent devices

(MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

IT Amines, uses

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

(diamines, aromatic, hole-transporting layers; MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

IT Electroluminescent devices

(displays; MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

IT Luminescent screens

(electroluminescent; MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

IT Vapor deposition apparatus

Vapor deposition process

(metalorg.; MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

IT 4733-39-5, Bathocuproin

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(blocking substances; MOCVD apparatus for long-life and low-threshold

color LED having metalorg.multilayers with mixing regions)

IT 12798-95-7
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (cathode layers; MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

IT 2085-33-8, Tris(8-quinolinolato)aluminum
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (electron-transporting layers; MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

IT 31248-39-2, 2,3,7,8,12,13,17,18-Octaethyl-21H, 23H-porphyrinplatinum 94928-86-6, Tris(2-phenylpyridine)iridium
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (emitting layers; MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

IT 147-14-8, Copper phthalocyanine
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (hole-injecting layers; MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

IT 123847-85-8, α -NPD 124729-98-2, MTDATA
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (hole-transporting layers; MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

IT 134-85-0
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (host substances; MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

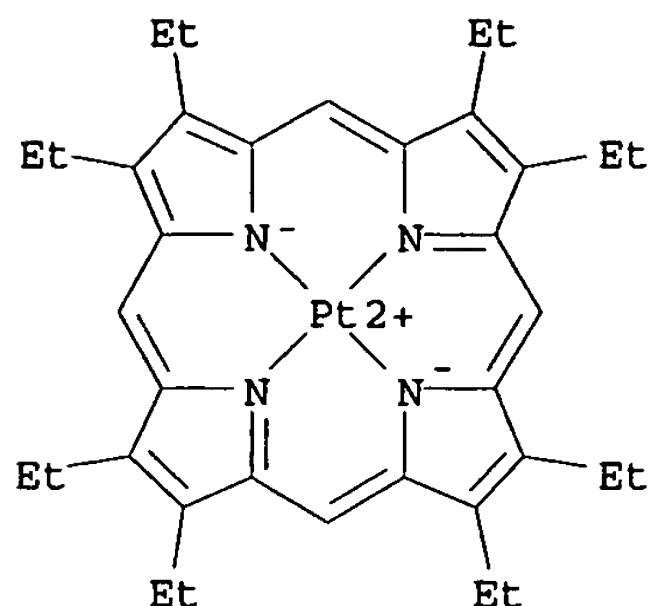
IT 7429-90-5, Aluminum, uses 12597-68-1, Stainless steel, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (vacuum chambers; MOCVD apparatus for long-life and low-threshold color LED having metalorg.multilayers with mixing regions)

L65 ANSWER 30 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2002:812254 Document No. 137:317624 Manufacture of organic electroluminescent devices. Tsuge, Hodaka; Komatsuzaki, Akihiro (Honda Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002313578 A2 20021025, 16 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-117306 20010416.

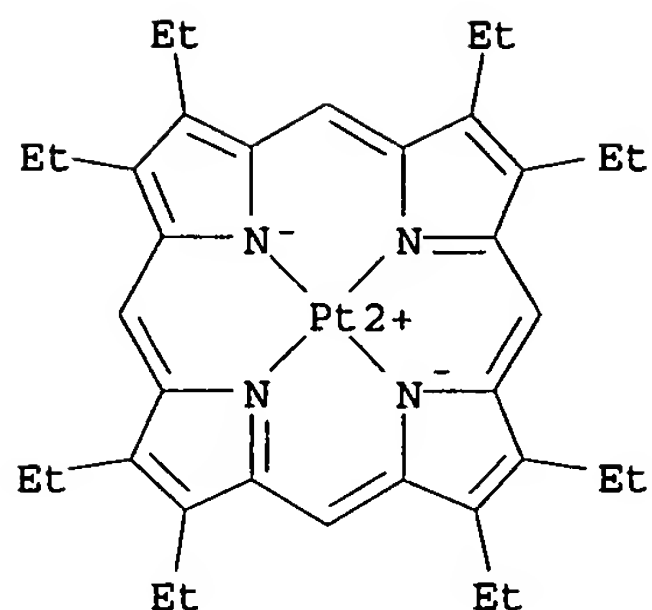
IT 31248-39-2
 RL: MOA (Modifier or additive use); USES (Uses)
 (manufacture of organic electroluminescent devices)

RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-

$\kappa N21, \kappa N22, \kappa N23, \kappa N24$] -, (SP-4-1) - (9CI) (CA
INDEX NAME)



IC ICM H05B033-14
ICS C09K011-06; H05B033-10; H05B033-22
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
ST manuf org electroluminescent device
IT **Anodes**
Cathodes
Electroluminescent devices
Multilayers
Organic matter
Solubility
Solutions
Solvents
(manufacture of organic electroluminescent devices)
IT 147-14-8, Copper phthalocyanine 2085-33-8, Aluminum, tris(8-quinolinolato- $\kappa N1, \kappa O8$)- 7789-24-4, Lithium fluoride (LiF), uses 9003-53-6, Polystyrene 12798-95-7 39399-28-5, Polyvinylbiphenyl 50926-11-9, ITO 65181-78-4, TPD 123847-85-8, α -NPD
RL: DEV (Device component use); USES (Uses)
(manufacture of organic electroluminescent devices)
IT 31248-39-2 153838-48-3 337526-85-9 337526-87-1 337526-88-2 337526-98-4 343978-78-9 343978-79-0 343978-94-9 405289-74-9 468732-33-4 468732-34-5
RL: MOA (Modifier or additive use); USES (Uses)
(manufacture of organic electroluminescent devices)
L65 ANSWER 31 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:812245 Document No. 137:317621 Manufacture of organic electroluminescent devices. Tsuge, Hodaka; Komatsuzaki, Akihiro (Honda Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002313563 A2 20021025, 15 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-117314 20010416.
IT 31248-39-2
RL: MOA (Modifier or additive use); USES (Uses)
(manufacture of organic electroluminescent devices)
RN 31248-39-2 HCAPLUS
CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)- $\kappa N21, \kappa N22, \kappa N23, \kappa N24$] -, (SP-4-1) - (9CI) (CA
INDEX NAME)



IC ICM H05B033-10
ICS H05B033-14; H05B033-22

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST manuf org **electroluminescent** device

IT **Anodes**
Cathodes
Electroluminescent devices
Multilayers
Organic matter
Solubility
Solutions
Solvents
(manufacture of organic**electroluminescent** devices)

IT 147-14-8, Copper phthalocyanine 2085-33-8, Tris(8-quinolinolato)aluminum 7789-24-4, Lithium fluoride (LiF), uses 9003-53-6, Polystyrene 12798-95-7 39399-28-5, Polyvinylbiphenyl 50926-11-9, ITO 65181-78-4, TPD 123847-85-8, α -NPD
RL: DEV (Device component use); USES (Uses)
(manufacture of organic**electroluminescent** devices)

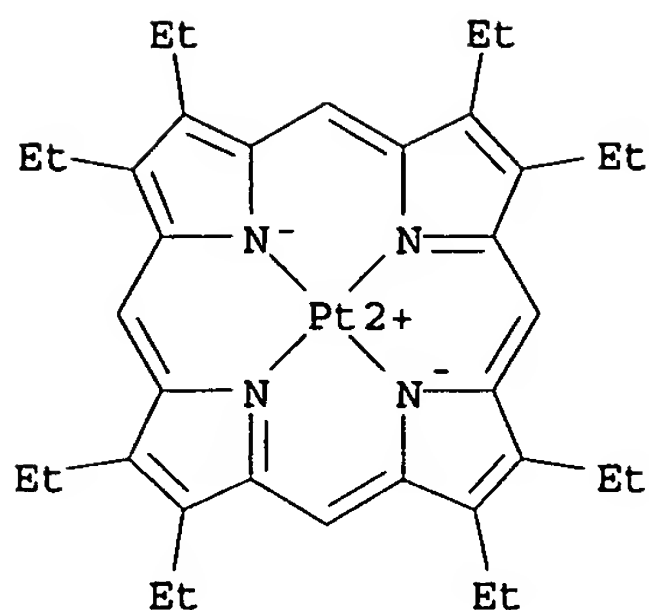
IT **31248-39-2** 153838-48-3 337526-85-9 337526-87-1
337526-88-2 337526-98-4 343978-78-9 343978-79-0 343978-94-9
405289-74-9 468732-33-4 468732-34-5
RL: MOA (Modifier or additive use); USES (Uses)
(manufacture of organic**electroluminescent** devices)

L65 ANSWER 32 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:792822 Document No. 137:317659 Production method of an organic **electroluminescent** device. Tsuge, Hodaka; Komatsuzaki, Akihiro (Honda Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002305078 A2 20021018, 17 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 2001-106397 20010404.

IT **31248-39-2**, Platinum 2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphyrin
RL: DEV (Device component use); USES (Uses)
(production method of organic**electroluminescent** device using solvents)

RN **31248-39-2** HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)- κ N21, κ N22, κ N23, κ N24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IC ICM H05B033-10
ICS H05B033-14; H05B033-22

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST org **electroluminescence** device prodn solvation

IT Solvation
(production method of organic**electroluminescent** device using solvents)

IT 15082-28-7, PBD 31248-39-2, Platinum 2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphyrin 94928-86-6 148044-16-0 153838-48-3 337526-85-9 337526-88-2 337526-98-4 337527-03-4 343978-78-9 343978-79-0 343978-94-9 405289-74-9 468732-33-4 468732-34-5
RL: DEV (Device component use); USES (Uses)
(production method of organic**electroluminescent** device using solvents)

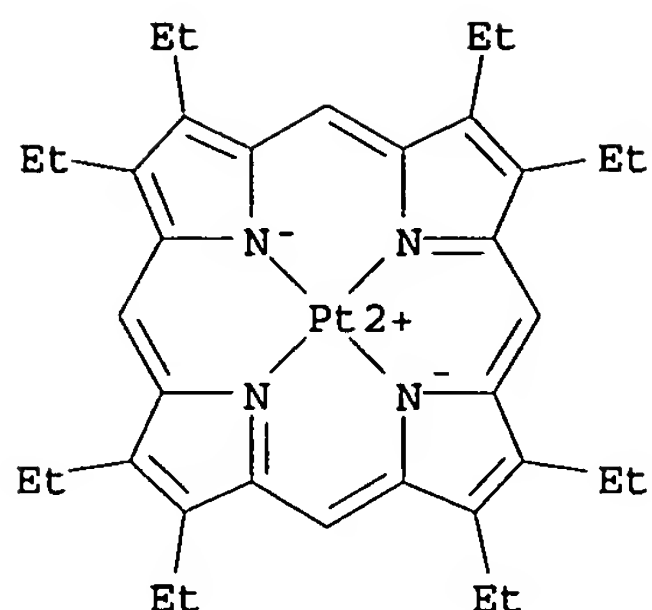
IT 75-05-8, Acetonitrile, uses 75-52-5, Nitromethane, uses 79-24-3, Nitroethane 90-11-9, α -Bromonaphthalene 100-41-4, Ethylbenzene, uses 110-82-7, Cyclohexane, uses 540-54-5, 1-Chloropropane 1330-20-7, Xylene, uses 12408-10-5, Tetrachlorobenzene
RL: NUU (Other use, unclassified); USES (Uses)
(production method of organic**electroluminescent** device using solvents)

L65 ANSWER 33 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:773910 Document No. 137:301867 Organic **electroluminescence** device and spin coating lamination method. Tsuge, Hodaka; Komatsusaki, Akihiro (Honda Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002299061 A2 20021011, 17 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-103842 20010402.

IT 31248-39-2, Platinum 2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphyrin
RL: DEV (Device component use); USES (Uses)
(organic **electroluminescence** device and spin coating lamination method)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)- κ N21, κ N22, κ N23, κ N24]-, (SP-4-1)-(9CI) (CA INDEX NAME)



IC ICM H05B033-14
ICS C09K011-06; H05B033-10; H05B033-22

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST org electroluminescence device lamination
dissoln

IT Dissolution
Electroluminescent devices
Lamination
Solubility
(organic electroluminescence device and spin
coating lamination method)

IT Coating process
(spin; solvent for organic electroluminescence device and
spin coating lamination method)

IT 15082-28-7, PBD 31248-39-2, Platinum 2,3,7,8,12,13,17,18-
octaethyl-21H,23H-porphyrin 94928-86-6 148044-16-0 153838-48-3
337526-85-9 337526-88-2 337526-98-4 337527-03-4 343978-78-9
343978-79-0 343978-94-9 405289-74-9 468732-33-4 468732-34-5
RL: DEV (Device component use); USES (Uses)
(organic electroluminescence device and spin
coating lamination method)

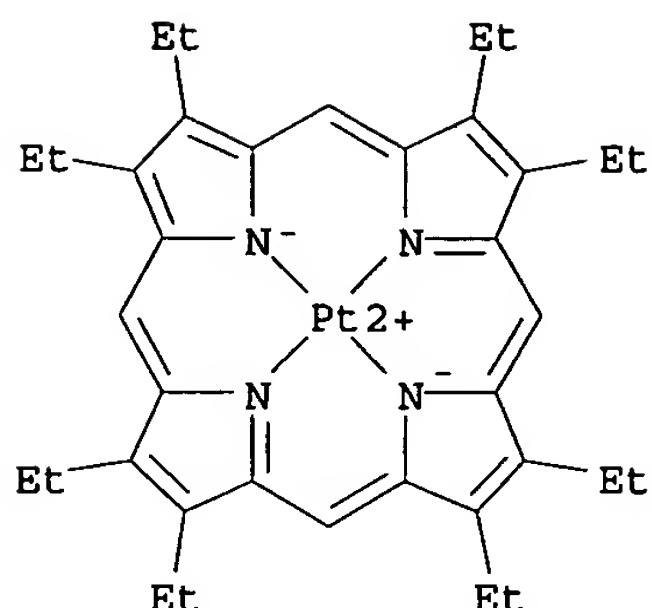
IT 56-23-5, Tetrachloromethane, uses 75-05-8, Acetonitrile, uses
75-52-5, Nitromethane, uses 79-24-3, Nitro-ethane 90-11-9,
 α -Bromonaphthalene 100-41-4, Ethylbenzene, uses 110-82-7,
Cyclohexane, uses 540-54-5, 1-Chloropropane 1330-20-7, Xylene,
uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvent for organic electroluminescence device and spin
coating lamination method)

L65 ANSWER 34 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:616081 Document No. 137:161254 Light emitting
device and manufacturing method thereof. Seo, Satoshi; Yamazaki,
Shunpei (Japan). U.S. Pat. Appl. Publ. US 2002109136 A1 20020815,
41 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-43812
20020110. PRIORITY: JP 2001-10887 20010118.

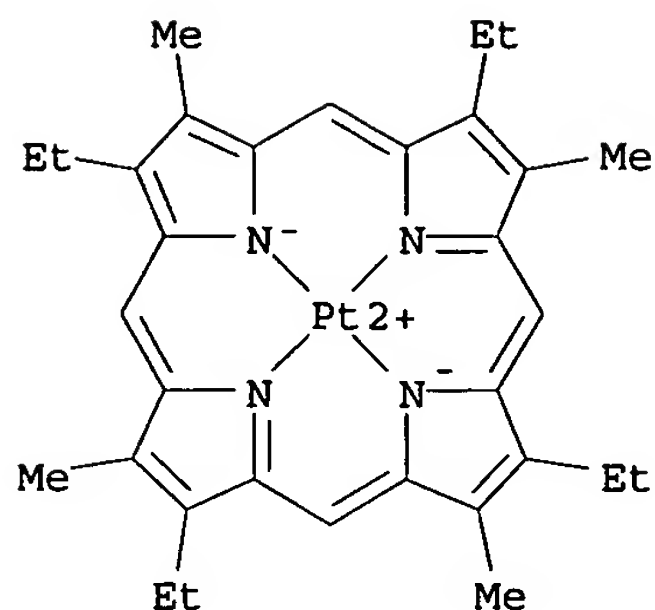
IT 31248-39-2, (2,3,7,8,12,13,17,18-Octaethyl-21H-23H-
porphyrin)platinum
RL: DEV (Device component use); USES (Uses)
(light emitting device and fabrication
method)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
 κ N21, κ N22, κ N23, κ N24]-, (SP-4-1)- (9CI) (CA
INDEX NAME)



IC ICM H01L035-24
 INCL 257040000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76
 ST **light emitting device** org fabrication
 IT **Electroluminescent devices**
 Electronic device fabrication
 (**light emitting device** and fabrication method)
 IT 119-91-5D, Cuproin, vaso-derivs. 147-14-8, Copper phthalocyanine
 2085-33-8, AlQ3 4733-39-5, BCP 7429-90-5, Aluminum, uses
 7439-88-5, Iridium, uses 7440-06-4, Platinum, uses 7440-41-7,
 Beryllium, uses 7440-66-6, Zinc, uses 14752-00-2, Aluminum
 Tris(4-methyl-8-quinolinolate) 15082-28-7, 2-(4-Biphenyl)-5-(4-
 tert-butylphenyl)-1,3,4-oxadiazole **31248-39-2**,
 (2,3,7,8,12,13,17,18-Octaethyl-21H-23H-porphyrin)platinum
 58328-31-7 65181-78-4, 4,4'-Bis[N-(3-methylphenyl)-N-phenyl-amino]-
 biphenyl 94928-86-6, Tris(2-phenylpyridine)iridium 123847-85-8,
 4,4'-Bis[N-(1-naphthyl)-N-phenyl-amino]-biphenyl 124729-98-2
 138372-67-5 148896-39-3 149005-33-4 150405-69-9 163226-12-8
 RL: DEV (Device component use); USES (Uses)
 (**light emitting device** and fabrication method)
 L65 ANSWER 35 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2002:503507 Document No. 137:70361 **Organicelectroluminescent**
 device and display apparatus. Naito, Katsuyuki (Kabushiki Kaisha
 Toshiba, Japan). Eur. Pat. Appl. EP 1220341 A2 20020703, 17 pp.
 DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI,
 LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR.
 (English). CODEN: EPXXDW. APPLICATION: EP 2001-310877 20011224.
 PRIORITY: JP 2000-402663 20001228.
 IT **14055-22-2**
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (**organic electroluminescent devices** with doped
 fluoropolymer emitting layers and display apparatus)
 RN 14055-22-2 HCAPLUS
 CN Platinum, [2,7,12,17-tetraethyl-3,8,13,18-tetramethyl-21H,23H-
 porphinato(2-)-κN21,κN22,κN23,κN24]-,
 (SP-4-1)- (9CI) (CA INDEX NAME)



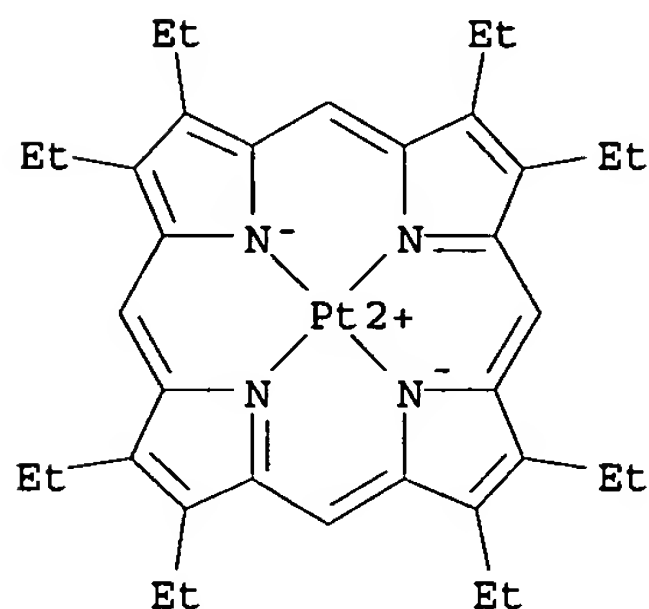
- IC ICM H01L051-20
ICS H01L051-30; H01L027-00
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74, 76
- ST org electroluminescent device doped fluoropolymer emitting layer
- IT Electroluminescent devices
(organic electroluminescent devices with doped fluoropolymer emitting layers and display apparatus)
- IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(organic electroluminescent devices with doped fluoropolymer emitting layers and display apparatus)
- IT 7440-22-4, Silver, uses 7440-39-3, Barium, uses 7440-70-2, Calcium, uses 50926-11-9, Indium tin oxide 439082-22-1 439082-24-3 439099-60-2
RL: DEV (Device component use); USES (Uses)
(organic electroluminescent devices with doped fluoropolymer emitting layers and display apparatus)
- IT 14055-22-2 14592-81-5, Tris(hexafluoroacetylacetonato)europium 19205-19-7 264906-16-3 439082-17-4 439082-19-6
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(organic electroluminescent devices with doped fluoropolymer emitting layers and display apparatus)
- IT 50851-57-5
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(polyethylene dioxythiophene doped with; organic electroluminescent devices with doped fluoropolymer emitting layers and display apparatus)
- IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)
RL: DEV (Device component use); USES (Uses)
(polystyrene sulfonate-doped; organicelectroluminescent devices with doped fluoropolymer emitting layers and display apparatus)
- L65 ANSWER 36 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:466499 Document No. 137:39172 Highly stable and efficient OLEDs with a phosphorescent-doped mixed layer architecture. Kwong, Raymond C.; Hack, Michael G.; Zhou, Theodore; Brown, Julia J.; Ngo, Tan D. (Universal Display Corp., USA). U.S. Pat. Appl. Publ. US 2002074935 A1 20020620, 12 pp. (English).
CODEN: USXXCO. APPLICATION: US 2000-738429 20001215.
- IT 31248-39-2

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(organic light-emitting devices with a phosphorescent-doped mixedlayer architecture)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IC ICM H01J063-04

ICS H01J001-62

INCL 313504000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74, 76

ST org light emitting device phosphorescent material doped active layer

IT Phosphorescent substances

(organic light-emitting devices with a phosphorescent-doped mixedlayer architecture)

IT Electroluminescent devices

(organic; organic light-emitting devices with a phosphorescent-doped mixedlayer architecture)

IT 147-14-8, Copper phthalocyanine 2085-33-8, Tris(8-hydroxyquinoline)aluminum 7429-90-5, Aluminum, uses 7789-24-4, Lithium fluoride (LiF), uses 37271-44-6 50926-11-9, Indium tin oxide 123847-85-8

RL: DEV (Device component use); USES (Uses)

(organic light-emitting devices with a phosphorescent-doped mixedlayer architecture)

IT 31248-39-2 343978-79-0

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(organic light-emitting devices with a phosphorescent-doped mixedlayer architecture)

L65 ANSWER 37 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN

2002:415612 Document No. 137:147142 Time-gated

electroluminescence spectroscopy of polymer light-

emitting diodes as a probe of carrier dynamics and trapping.

Lupton, J. M.; Klein, J. (Max Planck Institute for Polymer Research, Mainz, D-55128, Germany). Physical Review B: Condensed Matter and Materials Physics, 65(19), 193202/1-193202/4 (English) 2002. CODEN: PRBMDO. ISSN: 0163-1829. Publisher: American Physical Society.

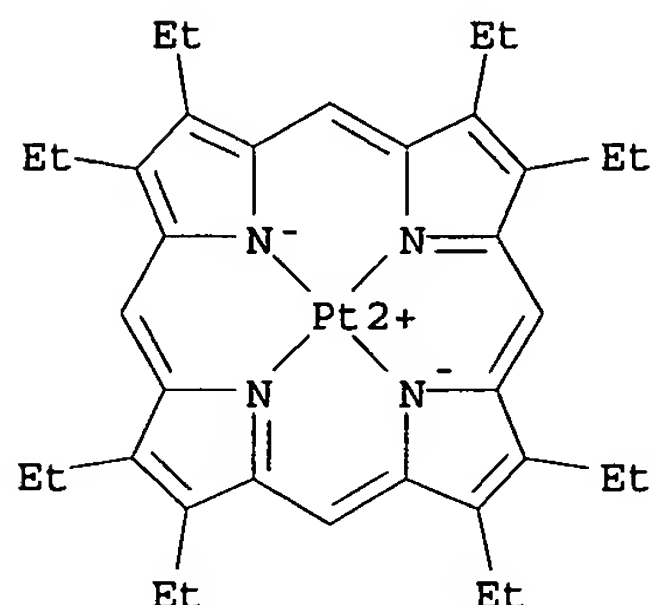
IT 31248-39-2, Platinum 2,3,7,8,12,13,17,18-Octaethyl-21H,23H-porphyrin

RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)

(polyfluorene derivative doped with; time-gated **electroluminescence** spectroscopy of polymer **light-emitting** diodes as a probe of carrier dynamics and trapping)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)- κ N21, κ N22, κ N23, κ N24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 36, 38, 76

ST carrier dynamics trapping delayed **electroluminescence** polyfluorene deriv **electroluminescent** device; platinum octaethyl porphyrin doped polyfluorene PLED charge transport **electroluminescence**

IT **Electroluminescent** devices (blue and green-emitting; time-gated **electroluminescence** spectroscopy of polymer **light-emitting** diodes as a probe of carrier dynamics and trapping)

IT Polymers, properties
RL: PRP (Properties); TEM (Technical or engineered material use);
USES (Uses)
(conjugated; time-gated **electroluminescence** spectroscopy of polymer **light-emitting** diodes as a probe of carrier dynamics and trapping)

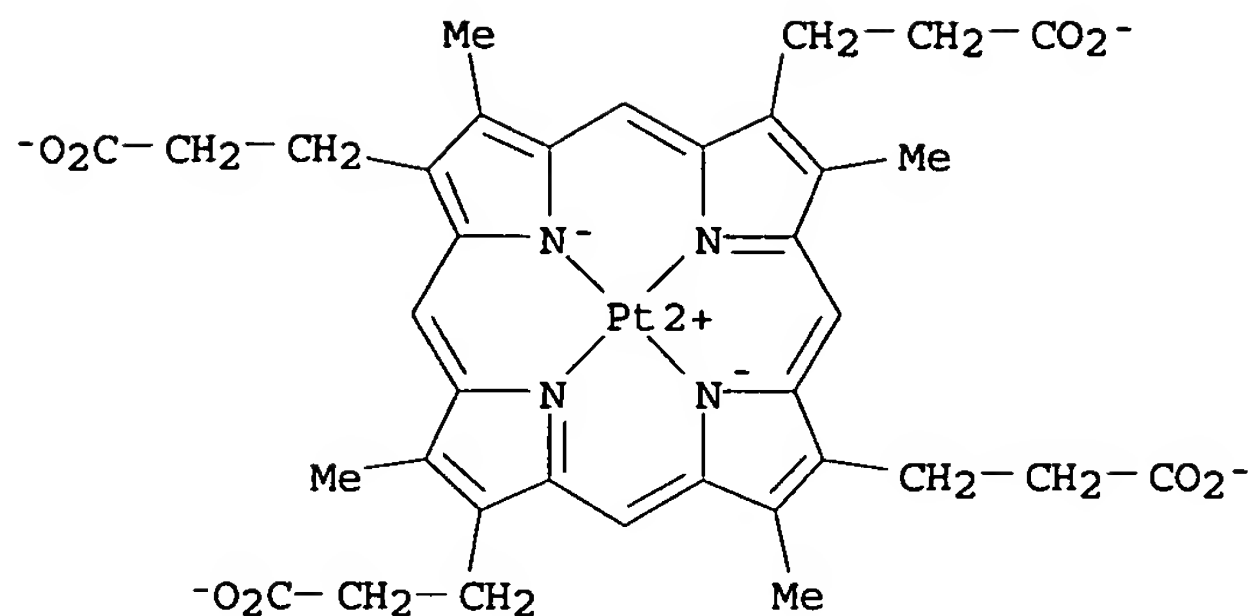
IT Electric current carriers (mobility, diffusion vs. drift mobility; time-gated **electroluminescence** spectroscopy of polymer **light-emitting** diodes as a probe of carrier dynamics and trapping)

IT Trapping (time-gated **electroluminescence** spectroscopy of polymer **light-emitting** diodes as a probe of carrier dynamics and trapping)

IT Electric current carriers (transport, dynamics; time-gated **electroluminescence** spectroscopy of polymer **light-emitting** diodes as a probe of carrier dynamics and trapping)

IT Luminescence, **electroluminescence** (visible, delayed, decay of; time-gated **electroluminescence** spectroscopy of polymer **light-emitting** diodes as a probe of carrier dynamics and trapping)

- trapping)
- IT 7429-90-5, Aluminum, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (capping layer; time-gated electroluminescence spectroscopy of polymer light-emitting diodes as a probe of carrier dynamics and trapping)
- IT 50851-57-5 126213-51-2, Poly(3,4-ethylenedioxythiophene)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); PROC (Process); USES (Uses)
 (charge transport layer containing; time-gated electroluminescence spectroscopy of polymer light-emitting diodes as a probe of carrier dynamics and trapping)
- IT 7440-70-2, Calcium, uses 50926-11-9, Indium tin oxide
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (electrode; time-gated electroluminescence spectroscopy of polymer light-emitting diodes as a probe of carrier dynamics and trapping)
- IT 188201-14-1, Poly[2,7-[9,9-bis(2-ethylhexyl)fluorene]]
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
 (phosphorescent dye-doped; time-gated electroluminescence spectroscopy of polymer light-emitting diodes as a probe of carrier dynamics and trapping)
- IT 31248-39-2, Platinum 2,3,7,8,12,13,17,18-Octaethyl-21H,23H-porphyrin
 RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
 (polyfluorene derivative doped with; time-gated electroluminescence spectroscopy of polymer light-emitting diodes as a probe of carrier dynamics and trapping)
- L65 ANSWER 38 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 2002:98150 Document No. 136:291175 Time-resolved electrochemiluminescence of platinum(II) coproporphyrin. Canty, P.; Vare, L.; Hakansson, M.; Spehar, A.-M.; Papkovsky, D.; Ala-Kleme, T.; Kankare, J.; Kulmala, S. (Laboratory of Inorganic and Analytical Chemistry, Helsinki University of Technology, FIN-02015, Finland). Analytica Chimica Acta, 453(2), 269-279 (English) 2002. CODEN: ACACAM. ISSN: 0003-2670. Publisher: Elsevier Science B.V..
- IT 90540-79-7
 RL: ARU (Analytical role, unclassified); CPS (Chemical process); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process)
 (time-resolved electrochemiluminescence of platinum(II) coproporphyrin)
- RN 90540-79-7 HCAPLUS
 CN Platinate(4-), [3,8,13,18-tetramethyl-21H,23H-porphine-2,7,12,17-tetrapropionato(6-)-κN21,κN22,κN23,κN24]-, tetrahydrogen, (SP-4-1)- (9CI) (CA INDEX NAME)



● 4 H⁺

CC 9-5 (Biochemical Methods)

IT 90540-79-7

RL: ARU (Analytical role, unclassified); CPS (Chemical process); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process)
(time-resolved electrochemiluminescence of platinum(II) coproporphyrin)

L65 ANSWER 39 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN

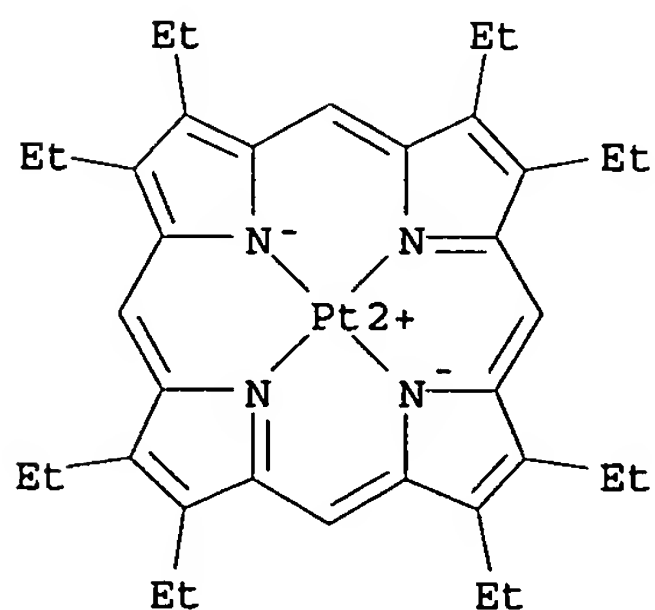
2002:66774 Document No. 136:126314 Luminescence device. Tsuboyama, Akira; Okada, Shinjiro; Takiguchi, Takao; Moriyama, Takashi; Kamatani, Jun (Canon Kabushiki Kaisha, Japan). Eur. Pat. Appl. EP 1175129 A1 20020123, 16 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2001-117367 20010718. PRIORITY: JP 2000-218321 20000719.

IT 31248-39-2, Platinum octaethylporphyrin

RL: DEV (Device component use); USES (Uses)
(electroluminescent devices using phosphorescent compds. in liquid crystal hosts)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)-(9CI) (CA INDEX NAME)



IC ICM H05B033-14
ICS H01L051-20; C09K019-54

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 75, 76

ST **electroluminescent** device phosphorescent compd liq crystal host

IT Liquid crystals
(discotic; **electroluminescent** devices using phosphorescent compds. in liquid crystal hosts)

IT **Electroluminescent** devices
Liquid crystals
Phosphorescent substances
(**electroluminescent** devices using phosphorescent compds. in liquid crystal hosts)

IT Liquid crystals
(smectic; **electroluminescent** devices using phosphorescent compds. in liquid crystal hosts)

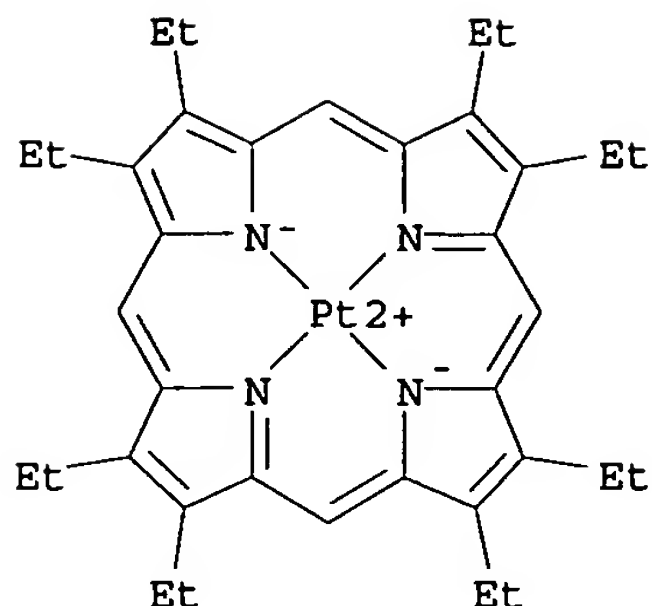
IT 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 4733-39-5,
2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline 7429-90-5, Aluminum,
uses 31248-39-2, Platinum octaethylporphyrin 50926-11-9,
Indium tin oxide 70351-86-9 94928-86-6 123847-85-8,
 α -NPD 219683-04-2
RL: DEV (Device component use); USES (Uses)
(**electroluminescent** devices using phosphorescent compds. in liquid crystal hosts)

L65 ANSWER 40 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
2000:493470 Document No. 133:127447 Thermal transfer element and process for forming organic **electroluminescent** devices.
Wolk, Martin B.; McCormick, Fred B.; Baude, Paul F. (3M Innovative Properties Company, USA). PCT Int. Appl. WO 2000041893 A1 20000720, 61 pp. DESIGNATED STATES: W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG.
(English). CODEN: PIXXD2. APPLICATION: WO 2000-US616 20000111.
PRIORITY: US 1999-231723 19990115.

IT 31248-39-2, Platinum octa ethyl porphyrin
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(organic **electroluminescent** device fabrication using thermal transfer elements and the elements and devices)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)- κ N21, κ N22, κ N23, κ N24]-, (SP-4-1)- (9CI) (CA INDEX NAME)

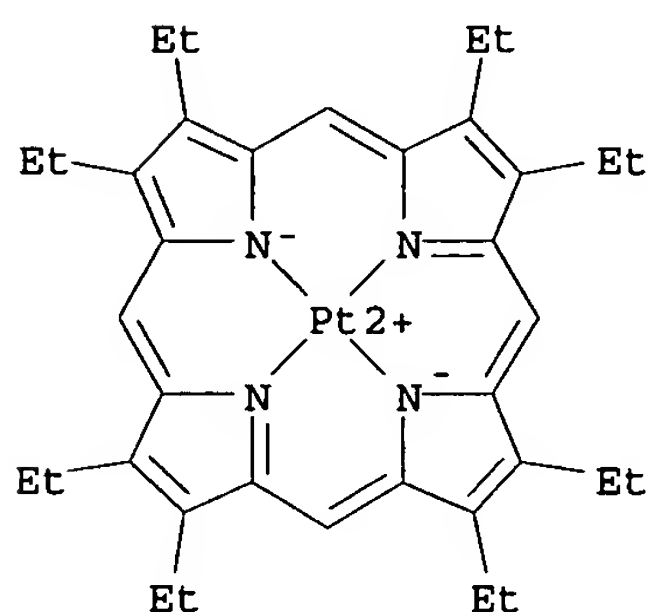


IC B41M005-38; H01L051-20; H05B033-10; G02F001-1335; H05K003-20
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 42, 74, 76
 ST thermal transfer element **orgaelectroluminescent** device fabrication
 IT Polyvinyl butyrals
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (Butvar B-98; organic**electroluminescent** device fabrication using thermal transfer elements and the elements and devices)
 IT Electric apparatus
 (multilayer; organic **electroluminescent** device fabrication using thermal transfer elements and the elements and devices)
 IT **Electroluminescent** devices
 Thermal printing
 (organic **electroluminescent** device fabrication using thermal transfer elements and the elements and devices)
 IT Carbon black, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (organic **electroluminescent** device fabrication using thermal transfer elements and the elements and devices)
 IT Transfers
 (thermal, element; organic**electroluminescent** device fabrication using thermal transfer elements and the elements and devices)
 IT 147-14-8, Copper phthalocyanine 2085-33-8, Tris(8-hydroxyquinolinato) aluminum 7429-90-5, Aluminum, uses 7789-24-4, Lithium fluoride, uses 9002-89-5 9003-39-8, PVP K-90 15625-89-5, Sartomer SR351 25067-59-8, Polyvinylcarbazole 25085-34-1, Joncryl 67 30604-81-0, Polypyrrole**31248-39-2**, Platinum octa ethyl porphyrin 50926-11-9, Indium tin oxide 65181-78-4, N,N'-Bis(3-methylphenyl)-N,N'-diphenylbenzidine 121448-64-4, Ebecryl 629 123847-85-8 123864-00-6 146162-54-1 150405-69-9 203009-20-5, Elvacite 2776 203340-57-2, Elvacite 2669 210347-52-7
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (organic **electroluminescent** device fabrication using thermal transfer elements and the elements and devices)

L65 ANSWER 41 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 1999:650828 Document No. 132:16700 Energy and charge transfer in

electroluminescent polymer/porphyrin blends. Cleave, V.; Yahioğlu, G.; Le Barny, P.; Friend, R. H.; Tessler, N.; Hwang, D. H.; Holmes, A. B. (Cavendish Laboratory, University of Cambridge, Cambridge, CB3 0HE, UK). Materials Research Society Symposium Proceedings, 560(Luminescent Materials), 303-307 (English) 1999. CODEN: MRSPDH. ISSN: 0272-9172. Publisher: Materials Research Society.

IT **31248-39-2, Platinum octaethylporphyrin**
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (energy and charge transfer in **electroluminescent polymer/porphyrin blends**)
 RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
 INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 36, 76
 ST energy charge transfer **electroluminescent polymer porphyrin blend**
 IT **Electroluminescent devices**
 Electron-hole pairs
 Luminescence
 Luminescence, **electroluminescence**
 Luminescence quenching
 Triplet state
 (energy and charge transfer in **electroluminescent polymer/porphyrin blends**)
 IT Polymers, properties
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (polyfluorenes and polyvinylenes; energy and charge transfer in **electroluminescent polymer/porphyrin blends**)
 IT 7429-90-5, Aluminum, uses
 RL: DEV (Device component use); USES (Uses)
 (electrode; energy and charge transfer in **electroluminescent polymer/porphyrin blends**)
 IT 50926-11-9, Indium tin oxide
 RL: DEV (Device component use); USES (Uses)
 (energy and charge transfer in **electroluminescent polymer/porphyrin blends**)
 IT 9011-14-7, PMMA **31248-39-2, Platinum octaethylporphyrin**
 222721-82-6
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (energy and charge transfer in **electroluminescent polymer/porphyrin blends**)

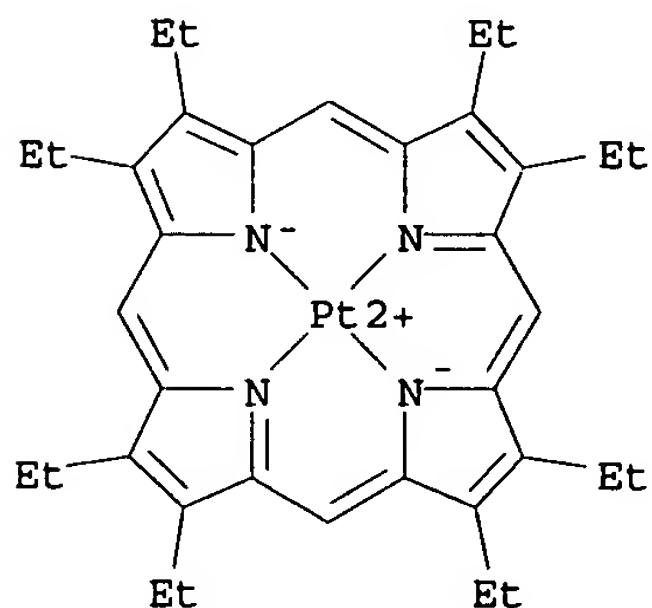
IT 251565-13-6, Alcatel ARF 301
 RL: NUU (Other use, unclassified); USES (Uses)
 (plasma asher; energy and charge transfer in
electroluminescent polymer/porphyrin blends)

IT 7727-37-9, Nitrogen, occurrence 7782-44-7, Oxygen, occurrence
 RL: OCU (Occurrence, unclassified); OCCU (Occurrence)
 (traces; energy and charge transfer in **electroluminescent**
 polymer/porphyrin blends)

L65 ANSWER 42 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN
 1999:271604 Document No. 130:303836 Highly transparent non-metallic
cathodes. Forrest, Stephen R.; Burrows, Paul;
 Parthasarathy, Gautam; O'Brien, Diarmuid; Thompson, Mark E.; Yu,
 Yujian; Shoustikov, Andrei; Petasis, Nicos A.; Sibley, Scott; Loy,
 Douglas; Koene, Brian E.; Kwong, Raymond C. (The Trustees of
 Princeton University, USA; The University of Southern California).
 PCT Int. Appl. WO 9920081 A2 19990422, 165 pp. DESIGNATED STATES:
 W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,
 DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP,
 KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,
 PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ,
 VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ,
 CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU,
 MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2.
 APPLICATION: WO 1998-US21171 19981008. PRIORITY: US 1997-948130
 19971009; US 1997-64005 19971103; US 1997-964863 19971105; US
 1997-980986 19971201.

IT 31248-39-2
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (transparent non-metallic **cathodes** and optoelectronic
 devices using them and their fabrication)

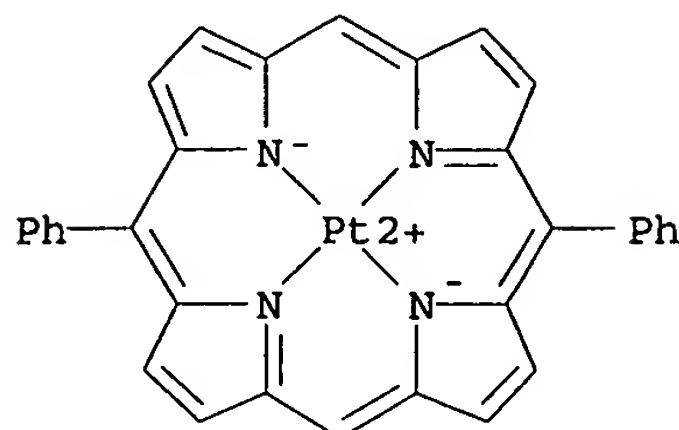
RN 31248-39-2 HCAPLUS
 CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
 INDEX NAME)



IT 223241-01-8P
 RL: DEV (Device component use); MOA (Modifier or additive use); PRP
 (Properties); SPN (Synthetic preparation); PREP (Preparation); USES
 (Uses)
 (transparent non-metallic **cathodes** and optoelectronic
 devices using them and their fabrication)

RN 223241-01-8 HCAPLUS
 CN Platinum, [5,15-diphenyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA

INDEX NAME)



IC ICM H05B033-26
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76
 ST org optoelectronic device transparent nonmetalliccathode;
 laser transparent nonmetalliccathode;
 electroluminescent device transparent nonmetallic
 cathode; azlactone deriv electroluminescent device
 IT Cathodes
 Electroluminescent devices
 Electroluminescent devices
 Optoelectronic semiconductor devices
 Photoelectric devices
 Semiconductor device fabrication
 Semiconductor lasers
 (transparent non-metalliccathodes and optoelectronic
 devices using them and their fabrication)
 IT Polyacenes
 RL: DEV (Device component use); USES (Uses)
 (transparent non-metalliccathodes and optoelectronic
 devices using them and their fabrication)
 IT Azlactones
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (transparent non-metalliccathodes and optoelectronic
 devices using them and their fabrication)
 IT Electric contacts
 (transparent; transparent non-metalliccathodes and
 optoelectronic devices using them and their fabrication)
 IT 147-14-8, Copper phthalocyanine 826-81-3D, 2-Methyl-8-
 hydroxyquinoline, compds. with gallium or indium 2085-33-8,
 Tris(8-hydroxyquinolinato)aluminum 7440-22-4, Silver, uses
 7440-55-3D, Gallium, compds. with 2-methyl-8-quinolinolate, uses
 7440-74-6D, Indium, compds. with 2-methyl-8-quinolinolate, uses
 14320-04-8, Zinc phthalocyanine 37271-44-6 50926-11-9, Indium
 tin oxide 65181-78-4, N,N'-Diphenyl-N,N'-bis(3-methylphenyl)-1,1'-
 biphenyl-4,4'-diamine 204200-08-8 204200-10-2 212385-85-8
 RL: DEV (Device component use); USES (Uses)
 (transparent non-metalliccathodes and optoelectronic
 devices using them and their fabrication)
 IT 31248-39-2
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (transparent non-metalliccathodes and optoelectronic
 devices using them and their fabrication)
 IT 842-74-0P 1163-85-5P 1564-29-0P 1787-23-1P 66404-30-6P
 108941-20-4P 222619-94-5P223241-01-8P
 RL: DEV (Device component use); MOA (Modifier or additive use); PRP

(Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (transparent non-metallic **cathodes** and optoelectronic devices using them and their fabrication)
 IT 223240-97-9P 223240-98-0P 223241-00-7P
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (transparent non-metallic **cathodes** and optoelectronic devices using them and their fabrication)
 IT 22112-89-6P 128374-11-8P 222620-15-7P 222620-17-9P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (transparent non-metallic **cathodes** and optoelectronic devices using them and their fabrication)
 IT 64-19-7, Acetic acid, reactions 76-05-1, Trifluoroacetic acid, reactions 84-58-2, 2,3-Dichloro-5,6-dicyanoquinone 100-10-7, p-Dimethylaminobenzaldehyde 100-52-7, Benzaldehyde, reactions 109-97-7, Pyrrole 123-08-0, p-Hydroxybenzaldehyde 127-09-3, Sodium acetate 463-71-8, Thiophosgene 495-69-2, Hippuric acid 543-24-8, N-Acetylglycine 826-81-3, 8-Hydroxyquinaldine 939-97-9, p-tert-Butylbenzaldehyde 1971-81-9, 4-Dimethylamino-1-naphthaldehyde 2645-07-0, 4-Nitrohippuric acid 4073-85-2, Aluminum propoxide 222619-99-0 222620-05-5 222620-10-2
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (transparent non-metallic **cathodes** and optoelectronic devices using them and their fabrication)
 IT 15770-21-5P 21211-65-4P, 2,2'-Dipyrrylmethane 113697-08-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (transparent non-metallic **cathodes** and optoelectronic devices using them and their fabrication)

L65 ANSWER 43 OF 43 HCAPLUS COPYRIGHT 2005 ACS on STN

1998:531973 Document No. 129:308022 New approaches to organic

light emission. Forrest, Stephen R.; Baldo, Marc

A.; Bulovic, Vladimir; Burrows, Paul E.; O'Brien, Diarmuid;

Parthasarathy, Gautam; Sibley, Scott; Shoustikov, Andre; Thompson,

Mark E.; You, Yujian (Dep. Electrical Eng., Cent. Photonics and

Optoelectronic Mater., Princeton Univ., Princeton, NJ, 08544, USA).

Polymer Preprints (American Chemical Society, Division of Polymer

Chemistry), 39(2), 992-993 (English) 1998. CODEN: ACPPAY. ISSN:

0032-3934. Publisher: American Chemical Society, Division of

Polymer Chemistry.

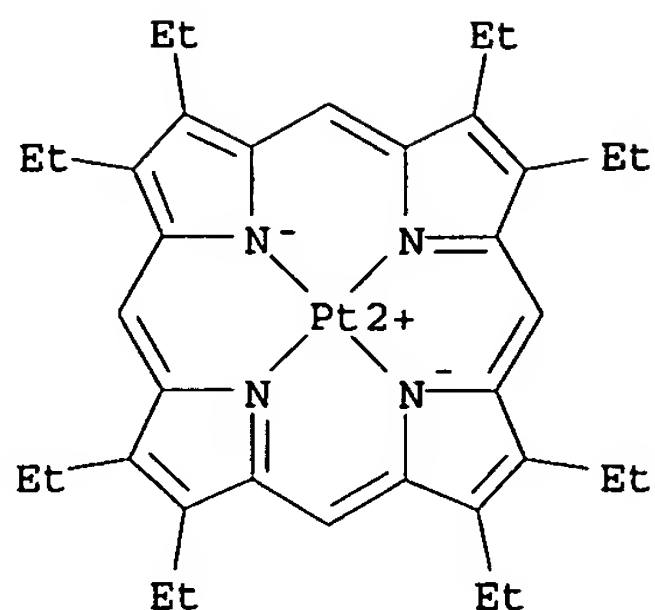
IT 31248-39-2, Platinum(II) octaethylporphyrin

RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)

(red phosphorescent dye used in stacked organic **light emitting device**)

RN 31248-39-2 HCAPLUS

CN Platinum, [2,3,7,8,12,13,17,18-octaethyl-21H,23H-porphinato(2-)-
 κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA
 INDEX NAME)



- CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76
- ST platinum porphine red phosphorescenceelectroluminescent device
- IT **Electroluminescent** devices
Phosphorescence
(red phosphorescent dye used in stacked organiclight emitting device)
- IT 147-14-8, Copper phthalocyanine
RL: DEV (Device component use); USES (Uses)
(hole injection; stacked organiclight emitting device using platinum octaethylporphine red phosphorescent dye)
- IT 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenyl amino] biphenyl
RL: DEV (Device component use); USES (Uses)
(hole transport layer; stacked organic light emitting device using platinum octaethylporphine red phosphorescent dye)
- IT **31248-39-2**, Platinum(II) octaethylporphyrin
RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(red phosphorescent dye used in stacked organiclight emitting device)

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